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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT.

$1.00 PER YEAR MEDINA OHIO

Vol. XXII. JAN. 1, 1894. No. 1.

STRAY STRAWS

FROM DR. C. C. MILLER.

THE BEE-KEEPER needn't fear losing his job, however hard the times.

THE REVIEW is asking its readers how it can be improved. W. Z. is great on hard questions.

COUGH MEDICINE from Germany.—Plantain juice and honey, equal parts, gently boiled for half an hour.

MANY CONFECTIONERS use strained honey for the body of most of their candies.—*Carrie M. Ashton, in The Household.*

ISN'T AN ERROR involved in that "candied comb honey" item on page 920? Does greater evaporation ever predispose to candying?

IF HALF the good things that are said about the dead had been said while they were living, some of the dead might now be living.

EMMA WON'T TELL, friend Flansburgh (p. 921), how many sections her cases hold; but I'll whisper in your ear, that, when she scrapes 1500 cases a day, each case holds just one section.

I HAD A TOOL like that figured on page 920. After scraping with it for half a day, Emma went back to the case-knife—too slow work holding that notch in just the right place.

SALT, a teaspoonful to a gallon of sugar syrup, is recommended by C. H. Murray, in *Review*, as a catalytic agent, when feeding for winter. As bees seem to like salt, it may be a good thing.

SEALED COVERS, poor things, seem to be deserted by their best friends nowadays; but in *Review*, Arthur C. Miller says he succeeds with them every time. But he insists that conditions must be right.

THE LATEST PLAN for polishing sections is submitting them to friction by passing through the mails. Some mailed from Medina, when they got to Marengo were the smoothest sections I ever saw.

THAT BICYCLE STRAW made A. I. stiffen his spine, but it made E. R. "get his back up" more than ever. When I run I lean forward, and when I ride a bicycle I expect sometimes to be in the shape of a C, sometimes of an I, and sometimes of an S.

THE OBSERVATION of Gerstung, that queens cease to lay for a few days each month, is not confirmed by other observers. Dadant thinks it can occur only in small hives where queens are crowded for room.

NEBRASKA has its State convention at York, the home of the *Nebraska Bee-keeper*, where there isn't a saloon in the county. The other York has plenty of saloons in easy reach, but he doesn't patronize them.

FOUL BROOD can not be originated from dead brood, says Mrs. Atchley, in *A. B. J.*, her own experience proving it as well as the fact that, before the introduction of foul brood, there was plenty of dead brood.

LINDEN SEEDS, according to an item in the *Rural New-Yorker*, are used Germany for the manufacture of table-oils. If any one wants to start a manufactory of that kind at Marengo I'll furnish bees to fertilize the blossoms.

RAMBLER has discovered why the foliage of maple-trees turns red in autumn. He says, in *Review*, that they're blushing over the deception practiced by dishonest men in selling the stuff they do under the name "maple."

THIRTY-ONE out of eighty-three at the Chicago convention voted for prevention of swarming. That's a gain, isn't it? Twenty years ago prevention of increase was discussed, but I stood almost alone in favor of preventing swarming.

IN RUSSIA, according to Olga Levaschof, in *Revue*, bees winter well in open air in spite of the severe cold, when the harvest is good; but after a bad season losses are disastrous. The great requisite for successful wintering there seems to be good food.

SPREADING COMBS for winter has its advocates, but their number is decreasing, I think. In reply to a question in *A. B. J.*, 1 out of 22 would keep the frames the same, summer and winter, and only one of the other three actually practiced taking out a comb and spreading the others.

HASTY doesn't agree with Alley, that in second swarming there's no queen in the hive out of the cell "till the moment the swarm issues." In old times, piping was always heard the evening before a second swarm, and the piping queen was always out of the cell.

SCHŒNFELD, the eminent German, declares the poison-gland a vital organ, secreting formic acid from the blood, and that formic acid finds its way from the blood through the walls of the honey-sac into the honey. He says the sting has nothing to do with putting acid into honey.

THE "WORNOUTNESS" of the wintering problem may make it desirable to bury decently that venerable problem; but the wornoutness of some colonies, and the gone-upness of others every spring make an annual resurrection of the hoary problem not altogether undesirable.

CORNEIL AND SIMMINS, of Canada and England, are having a set-to in the *A. B. J.*, as to the spontaneous origin of foul brood, Simmins affirming, Corneil denying. Two good men. It will hardly turn out that a crop of any kind can be raised without seed from *some* source.

HOW CAN I please every one? I've written "Saint Joseph" to pacify Bro. Abbott, and now comes an Iowa man filling out the description of the "Saint"-ed city by calling it "a city where they licensed gambling on their fair-grounds and ran 26 gambling-tables," and had a saloon that ran 65 bar-keepers coatless and sweating, with people gathering 100 deep at the saloon between horse-races, which ran 7 in an afternoon, with pools sold on all the races, and *he* wants me to call it Holy Saint Joseph!

USING BEE-ESCAPES.

HOW TO PUT ON; HOW THEY SAVE LABOR AND ROBBERS; AN EXCELLENT REPORT FOR BEE-ESCAPES.

In my work I have been testing escapes more and less, sometimes to the number of thirty or forty; and to say they are advantageous always would not be my belief, but yet I think them a decidedly useful implement. It is not the trouble of putting them on that is an objection, nor taking them off; in fact, if we work as fast as we can, the *time* amounts to nearly nothing. Sixty to one hundred per hour could be put on by a little practice. They can be put on at any time, but probably the best time is in the evening, and wheel the upper stories into the extracting-room the next morning, utilizing the cool of the evening and morning when it is pleasant and invigorating to work—while Mr. France is riding to and from the apiary—too late and too early to brush bees from combs. The only fault I could ever find with gardening was that the mornings and evenings were too short.

It is impossible to go to the apiary, put on the escapes, and extract the honey on the same day, because the bees will not be out until in the afternoon. Our present forms of escapes (I use the Porter) do not seem to work fast enough, but we may never get any that will do better than the present forms.

To put the escape-board under the upper upper story does not need to be lifted off. Simply pry up the rear end of it about six inches with the left hand. A chisel may be necessary to start it. As soon as it starts, begin to blow in, across the brood-frames, smoke from the smoker held in the right hand, on the right side of the hive as you stand in the rear. Sharp blasts in the narrow crevice will pass clear across. Do not look to see if the bees run; if you have smoked bees a thousand times or more you may know that every bee will get out of the way as soon as possible. When the edge of the hive is up six inches, put your left knee against the edge, to hold it there while the hand goes over to catch the front hand-hole, and raise that end of the story about a foot, and swing it around to the left, using the knee for a pivot. By this time the right hand has set the smoker down and brought the escape-board up, and lays it on the top of the brood-chamber. Escape-boards are light. One hand can handle them by the rim and lay one down carefully to avoid killing bees. Then both hands are free to ease the upper story down on to it. This is only the fraction of a minute, but it takes as large a fraction to get to the next hive, and another to straighten the back after the bending position. Rheumatics straighten up very slowly sometimes. No pans of water are needed, nor honey-daubed brushes to stick to every bee they strike—no handkerchiefs to arrest the drops of perspiration that chase each other off the end of the nose into the hives, nor aching fingers from grasping slippery projecting arms while plying the brush.

Brushing bees hurriedly from the combs, with old Sol looking straight down at you in the confined air of a veil, is like feeding a thrashing-machine or firing an engine. The feeder steps out from his machine, the fireman from his cab, and apiarists seek the shade of a tree or building while they mop away the sweat and secure a ree breath of cool air.

The principal fault I have found in escapes is, where only one upper story is used it keeps all the bees from work about six hours while they are getting through the escape, or else we need a six-hour supply of empty combs and stories to begin work with; but where two extracting-stories are used, one could always be left on. I used two stories, but expect, another season, to use three.

Brace-combs may trouble where narrower frame material than 1$\frac{1}{16}$ is used in either top or bottom bars. Still again, there is about one colony in twenty that persists in their construction, and needs a change of queens.

When our harvest ended last June I did not think there would be any honey in the fall, and I left on about 75 upper stories full of capped sage honey, there not being a pound of winter stores in the lower hives. However, they gathered enough from tarweed and other bitter flowers to about half fill the lower combs. The escapes are put on in the afternoon, and the upper stories taken into the tent the next morning, and extracted during the day. The empty combs are returned to the hives the following evening, to be cleaned during the night; and now after five days there is only occasionally a stray robber smelling around. This could not be done without escapes, and I am so well pleased with the plan that I shall try to leave half the crop (if we have any—prospects look poor now) on another season, and extract it after the hot weather is over, and there are no ants to bother.

The honey is thick enough to be eaten with a fork, without any trouble, but the extractor must be turned like a thrashing-machine cylinder, which is easily done by putting a small cog-wheel on the crank end of the crank-shaft of a two-frame Novice machine. Then another larger cog-wheel, to which the crank is attached, is arranged on the side of the can just below the smaller wheel. It takes a little more turning, but the work is as easy as in hot weather. C. W. DAYTON.

Pasadena, Cal., Dec. 15.

[This is one of the best reports, if not *the* best, we have received showing the value of the bee-escape as a labor-saver. We commend its careful reading to all of our subscribers.—ED.]

MATING OF QUEENS.

DOES EARLY SPRING MATING OR LATE FALL MATING HAVE ANY EFFECT UPON THE LONGEVITY AND FUTURE USEFULNESS OF QUEENS?

[In Stray Straws for Nov. 15, page 842, Dr. Miller referred to Guenther, a German authority, and editor of the *Centralblatt*, as saying that queens fertilized in the middle of May were not as prolific or long-lived as those fertilized so late that they did not lay until the next spring. Regarding this point, Dr. Miller has received a letter that goes to confirm Mr. Guenther's position. As the facts are too valuable to be confined to a private reader, the doctor sends the letter on, which we are very glad to reproduce.]

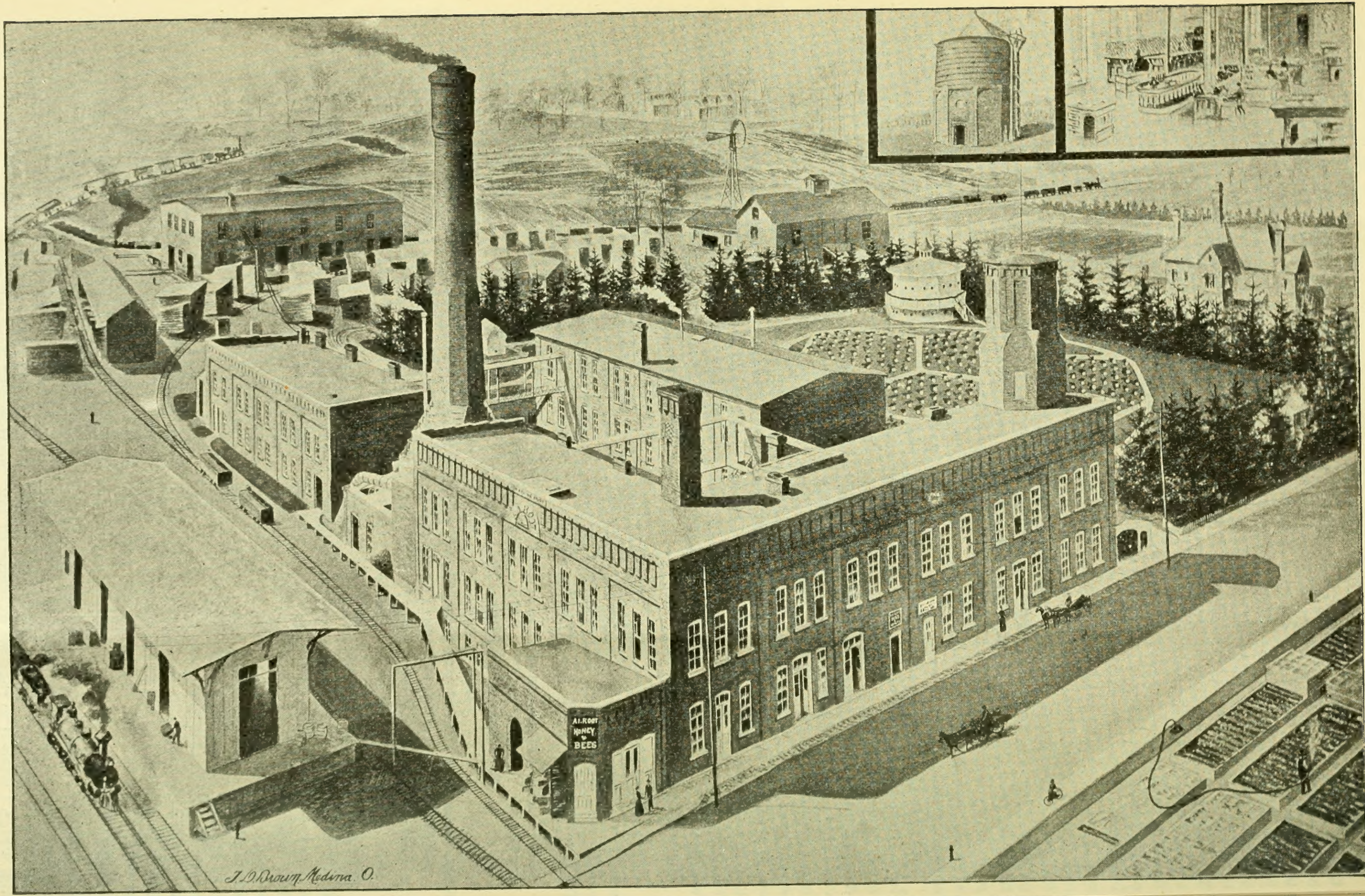
Dr. Miller:—Your item concerning Mr. Guenther's observations (p. 842) reminds me of a case I had some years ago. I had a valuable queen from which I wished to requeen as many of my colonies as possible; and, in my eagerness and ignorance combined, I ran the business rather late in the fall. I had one fine virgin that I had about despaired of having fertilized before the weather should become too cool. But I had managed to provide the colony with plenty of choice drones; but for a full week after she should have been out, the weather was too cool. On the 18th of October it became warm, with but little wind. I closed them in early in the morning, and shaded them until the afternoon, when I loaded them on a spring wagon and took them over a mile from home to a hillside facing south. I then poured half a pint of warm honey over the frames. That set up a great commotion among the bees, and drones and queen were soon on the wing. In less than ten minutes I had the satisfaction of seeing my queen return with the mark of fertilization. She did not lay any eggs that fall. The following season she gave evidence of being a valuable queen. When she was two years old I traded her, with her colony, to a neighbor for some shoats. Two years later the purchaser sold out to go west, and I bought the hive and bees back. He stated that they had been bountiful honey-gatherers, but had never swarmed, which I doubted; but when I had taken her home I opened the hive and found the same old queen still there. There could be no mistake in the matter, as I had clipped both her wings rather close in the spring following her rearing, and the late owner had never handled the combs.

The first season after I bought her back was a poor one; but her colony was one of the best in the yard. The following spring, then in her sixth year, she was still there with a good colony of her progeny. Knowing her age I supposed she would not live until the season would fairly open; and being anxious to see how long she would live, I removed her in April to a hive having only about a pint of bees. A good season followed, and she built up a strong colony, and gave me 30 lbs. of surplus comb honey. She was superseded in September of that year, being a little over a month less than six years old.

Is it possible that her long idleness before the next laying season might account for superior quality and longevity? I am disposed to believe that Mr. Guenther has opened a question worthy of investigation. G. B. REPLOGLE.

Centerville, Ia., Dec. 4.

[We should be glad to hear from others who have made observations along these lines. The theory put forth by Guenther, and confirmed by G. B. Replogle, looks reasonable. The average honey-producer usually finds it more practicable to raise queens after the honey-season; i. e., in late summer and early fall, when the change of queens will effect the least disturbance. That being the case, the advisability of late mating will dovetail very nicely with common practices.—ED.]


A. I. ROOT
HONEY
&
BEES
J. D. Brown Medina. O.

MANUM IN THE APIARY.

HOW HE RAISES QUEENS.

"Good-morning, Mr Daggett. I hope you rested well last night."

"Yes, Mr. Manum, I rested very well indeed. I assure you that the pure air one finds among these green mountains is very invigorating as well as soothing to the nerves. Why, I have been here only two days, and I already feel much improved in vigor."

(Mr. E. R. Daggett, herein mentioned, is a retired bee-keeper from New York State.)

"Well, Mr. Daggett, I have come in to invite you to accompany me to one of my out-apiaries. This is the first day since your arrival that the weather has been suitable for one of your age to venture far from the house; but this is a beautiful warm June morning, and I think a six-mile drive may sharpen your appetite."

"Yes, Mr. Daggett, you will find it a beautiful drive, for Mr. Manum tells me he is going to the Meach yard to-day; and for fear you may feel the want of something to eat before you return, I have put up a lunch for both of you. When Mr. M. goes to his out-apiaries I never know at what hour to expect him back; hence I have learned to prepare a lunch for him, for *he* never would think of it. Why, Mr. Daggett, I have known that man to leave home immediately after breakfast, and not return until dark—these long days—and work all day on a light breakfast. I think it very imprudent in him; hence my watchfulness in providing a lunch," says Mrs. Manum.

ON THE WAY TO MEACH'S.

"Manum, what body of water is it I see at the foot of that mountain at our right?"

"That is Bristol Pond, and a very peculiar pond too. It is one mile long by half a mile wide; and, as the saying is, it has no bottom. It is really a mud pond, with only a few inches of water over the mud, yet there are a good many fish in it. This pond is fed wholly by springs issuing from the base of the mountain. There, you see that large white house on the hill yonder? That is where the Hon. H. B. Williams lives, and where I have an apiary."

"What in the world is going on here, Manum—limeworks?"

"No, this is the kaolinworks, where a large business is done. This kaolin is nothing more than white clay washed in water, and conducted in those long spouts you see laid in all directions. These spouts conduct the clay-water into large vats where it remains several days, the clay settling to the bottom, and then the water is run out of the vats, and the clay wheeled to those long dry-sheds and deposited on shelves to dry. When thoroughly dry it is put into barrels and shipped to market."

"For what purpose is it used?"

"Well, I can hardly tell you. It is said that much of it is used for sizing paper (wall-paper especially), also for stuffing or filling prints, cotton cloth, etc. It is also believed by many that a large amount of it finds its way into confectioners' shops, also paints; in fact, it is doubtless used for adulterating many things."

"Do they get this clay near by?"

"Yes; that range of hills just in front of us is supposed to be nearly all composed of this clay. The best clay, however, is found from 50 to 100 feet below the surface.

"Well, here we are at Meach's. My! the bees are lively to-day."

"Well, I should think as much, Manum. What are they working on now?"

"Clover principally, though the raspberry bloom is not quite over yet; and I noticed, as we were coming, that quite a few bees were on the raspberries by the roadside."

"Have your bees done much on clover yet?"

"No. This is the first promising day of the season, and I feel very much encouraged. Here is a veil for you. You'd better wear it, as a person standing around looking on is much more apt to be stung than is the operator. There, now, I will first look for and remove queen-cells from those colonies from which I removed the queen the 17th inst., which was 8 days ago. Let me see. This is one of my choice breeding colonies, and I must handle the combs very carefully, so as not to jar and injure the queen-cells. My! just look at those nice cells on this comb—16 on this one comb, 8 of which will answer to save. Let me see—why, the record says this colony had cells ready to cap when the queen was removed. Whew! here is a young queen gnawing out, and I will let her run into one of my pocket-cages and introduce her into a colony in the home yard. There, you see, Mr. Daggett, I have 18 fine queen cells from this colony, which I will now put into my nursery-cages which I keep in an upper story placed over No. 12."

"Oh, my! Manum, is that the way you hatch queens? Why, when I kept bees we did not have all these new-fangled conveniences."

"There, Mr. D., just see these nice queens that have just hatched—12 in that nursery-frame, and here are 8 in this one; that makes 20 I have to introduce here to-day; and now that I have finished looking over those 20 colonies from which the queens were removed the 17th, I will remove and cage the last 16 yearling queens there are in this yard. I will get my box of mailing-cages and ask you to carry it for me. Where in the world is this queen? I must have overlooked her. Oh! here she is on the side of the hive. There, I guess 7 bees caged with her as companions are enough this warm weather. I will now make an entry of this in my queen-book, and also on this record-board kept in the hive, so that, if I should lose my book, I shall have something to refer to."

"I see, Manum, that you have cages here addressed to parties in New York, Iowa, Texas, Florida, and here are two large ones to go to Australia. Is this an extra day with you, or do you have this to do every day?"

"Well, this is about an average day's work. I have but 18 queens to mail to-morrow. I have to cage them the day before, as a rule. I have mailed over 25 a number of days, and have mailed 45 two days, and one day 61. These were young queens, taken from my nuclei. That day was spent wholly working at the nuclei. It is now nearly 1 o'clock, and I think we'd better have our lunch. I will first go and feed the horse, and get some water."

"Your wife said she put in some coffee with the lunch."

"Oh what a thoughtful woman she is! That, however, is more especially for your use, as she knows I am not fond of cold coffee.

"Lunch over, I will now examine the sections to see if all is right. Here are two in this clamp from which the foundation has dropped down. I will stick it back in place by pressing the edge of the foundation on to the section with my knife, by heating the blade on the smoker. Here is a hive that must be out of level, because the bees are fastening the lower edge of the foundation in the sections to the separators. I will get the level and put this hive to rights at once. There, it was as I expected—quite a little out of level. Here is a colony, the bees of which have their sections nearly ready to cap, and I think I will tier them up. I would not do so for a day or two if I could be here at that time; but as I shall not be here for a week, I fear they may need more room before that time, if this pleasant weather continues. You can see, Mr. Daggett, I have to manage differently with out-apiaries that I visit only once a week than I would had I only one apiary. There, this part of the work is done, and I will now run in the 20 virgin queens we found hatched this morning. I will get the nursery-cages right out here, and we will commence at this corner of the yard. If you will hold this cage-frame for me I will make quick work of it. Let's see—it is 20 minutes of 5 o'clock. Now I will show you a fine trick. There, I take a nursery-cage containing a virgin queen, raise one corner of the enameled cloth so as to expose 1½ inches of the ⅜ space between sections. Now I place the cage over this opening, wire slide down, and draw the slide, and at once the queen goes down among the bees, where she is welcomed. Now I make a record of this introduction, and now we will go to the next queenless colony, and so on through. We have introduced the 20 queens in 19 minutes."

"Well, Manum, I am surprised at these new plans. You seem to have all the conveniences for doing the work among the bees that one could ask for; and now I do not wonder so much as I did that you can care for so many bees without help."

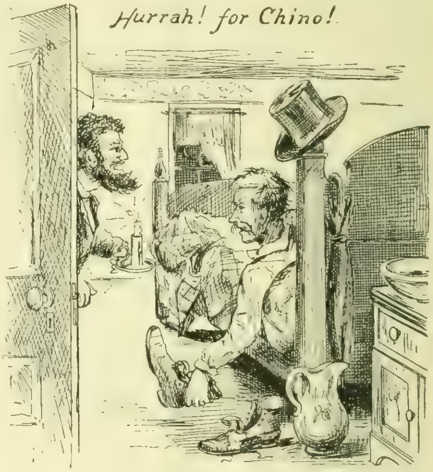
"Now, Mr. Daggett, my work in this yard is done for to-day, and we will return home. To-morrow we will go to the Williams yard, where I am conducting some experiments in which you may be interested." A. E. MANUM.

Bristol, Vt.

RAMBLE 99.

THE CHINO VALLEY BEET-SUGAR FACTORY.

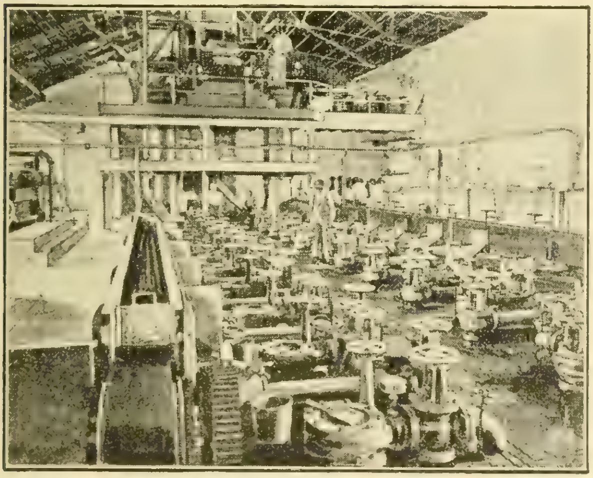
It was quite early for the Rambler to get up; and, besides, there was a heavy fog that morning that added to the disagreeable features of early rising; but long before the break of day Mr. Clark gave the summons, "Hurrah for Chino!" and the summons had to be obeyed. I had hardly become reconciled to the idea of having my peaceful morning dreams suddenly dispelled, when a few of the neighbors and their wives began to put in an appearance; and the burden of each man's remarks was, that his wife had not slept, nor had she allowed any one else in the house to sleep, since midnight. It seemed certain, that, if the wives could have had their way, they would have been in Chino by break of day, rousing people up at that place. "How far is it to Chino, any way?" remarked one of the party. The definite reply was given, that it was a right smart distance; another said that it was six looks and a half. That seemed a satisfactory answer, and we were soon taking our looks around the mountain; but inasmuch as the fog still interfered it took a great many looks to get even a short distance. By persistent inquiry, however, I found that it was about 20 miles, and our three loaded wagons made quite a procession as we proceeded on our way.


Hurrah! for Chino!

The first portion of our journey passed us to the rear of West Riverside, a thriving new colony, and where, during the past year, a thousand acres of white sage and other honey-producing plants have been plowed under, spoiling a large area of bee-pasturage. Workmen with teams and scrapers were grading roads and boulevards for a new town site. Riverside is so justly famous for its oranges and its beauty generally, that, on three sides, it has a family of young Riversides—East, South, and West. The greater portion of our journey, however, lay through an unimproved and uninhabited country, now given over to the wandering sheep-rancher, but in time to be occupied by the water-ditch and the fruit-orchard. Several large areas here are plowed and sown to barley and wheat; and from the amount of volunteer grain that was making its appearance, there is an immense amount wasted during the harvest.

Mr. Clark, having the largest wagon and strongest team, carried all of the eatables for our expedition, which consisted mostly of pie. The country being monotonous and uninteresting, Mr. C. wished to stop and sample the various mixtures that were directly under his seat; but the wives of the whole party sat down, as it were, upon this proposition, and we had to proceed. Mr. C. looked wistfully down toward the bottom of the wagon, and evidently thought, "Oh! so near and yet so far."

The factory was in sight now, and we were approaching it from the back door, as it were, and through acres and acres of beets, some in the ground, some topped, some piled, and some in large wagons drawn by four horses on the way to the factory. When this factory was first started, the beets were all topped by hand; but Yankee genius developed a machine for topping them before they were out of the ground, and as fast as a horse can walk; then a light plow lifts them out. They are then thrown by hand into those large wagons. The wagon-boxes were provided with a strong rope net which we noticed was spread with care in the bottom of the box, and the use of which we shall find out when we get to the factory.



CHINO BEET-SUGAR WORKS.

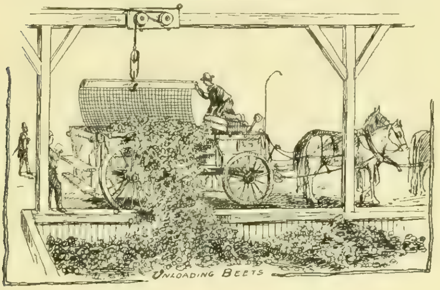
The first thing that struck us decidedly, and made us all exclaim something, as we drew near the factory, was a gorgeous odor emanating from an immense pile of refuse—souring beet-pulp. This was being fed to over 700 head of cattle, and also to several hundred sheep; and, notwithstanding the odor, they ate it with a relish. The great amount of pulp thrown out is not wholly consumed until several months after the factory has ceased running.

The object of our visit to the factory at this time was owing to the fact that Mr. Gird, the proprietor of the ranch, had decided to sell off a large number of lots at auction. Heretofore the land had, to a great extent, been let out on shares; but thinking that an ownership on the part of the tiller would result in the production of more and better beets, the sale was decided upon. When we arrived we found teams converging on Chino from all sections of the country; and, in addition to the teams, 11 carloads of people were on the ground; and, though hard times seems to be the general cry, there were 1500 people assembled, ostensibly to purchase land; and it seemed to be the well-grounded boast of Chino that there was no hard times in the sugar-beet district.

Ordinarily the factory is not open to visitors; but this being a gala day, the hundreds were allowed free access where could be witnessed the grinding up of beets at the rate of 100 tons a day. The run of the season had been 55,000 tons, making 15,000,000 lbs. of sugar. Every year the factory increases its tonnage, and it is proposed to use up 80,000 tons next year. At this time, load after load was being dumped in rapid succession into the long pits at the end of the factory; and here we saw the utility of those strong rope nets. The net was secured to the wagon on one side, and to a movable plank on the other. The wagon was driven to the proper position, the plank was attached to a hook and sliding pulley. and a donkey engine sputtered away for a minute, lifting one side of the net, and the load went tumbling into the pit.

To follow the process of the manufacture of the beet into sugar, and describe the costly machinery, would take many pages; but suffice it to say, that in and around the factory there are 1000 people employed, and there is not a Chinaman in the crowd; and, furthermore, they know what to do with the boys in Chino. They put them into the factory to work, for there are but few idle hands around Chino.

The great land sale was conducted under a large canvas pavilion, and every thing was provided for the comfort of the visitors, even to a bountiful free lunch, which some of our party cleaved unto until the last morsel was gone. At one side of the pavilion was a large map of Chino, with the lots marked off and numbered. A very fluent gentleman made the statement that the profits upon an acre grown to beets was all the way from $68 to $119. The benefits were, also, that the water was near the surface; that the town was healthful—very; that 34 babies had been born during the past month; but some one corrected him. It was 34 in a *year*. The idea that 34 were born in one *month*, in that small town, was putting the health at too high a rate, and would deter people from buying, evidently; 34 babies, however, meant that about three-fourths of a babe was born every week. Just think of it!



The venerable auctioneer commenced his work, and ten-acre lots were rapidly struck off, all the way from $134 to $205 per acre. A couple of men interested in the sale walked up and down through the audience, shouting, at the same time that the auctioneer got in his "will you give me a five, five, five?" "This is the bargain of your lifetime. This land is worth $300, every dollar of it."

"Will you raise it a five, five, five?" said the auctioneer. "Profits," said the voice at the same time, "over $100 an acre. A chance of your life, gentlemen." And the auctioneer went on with his "five, five, five." On the whole, the scene was quite lively, with a result of selling $70,000 worth of land. And think ye, farmers of the East, who think your 100 acres a small farm, here in this land *ten* acres is enough in either fruits or beets.

This large industry has been built up largely through the fostering care that has been thrown around it by the two-cent bounty upon sugar. Should this bounty and the tariff both be taken off, this factory will be seriously crippled, and others that were going to be built soon here in Southern California will probably also get a setback.

And while considering the flourishing state of the sugar business, under the bounty, I was forcibly reminded of the languishing condition of the honey industry. When this bounty was first proposed, the question was fully discussed as to the advisability of getting honey included. From my view, it would have been a good thing to secure a bounty on comb honey, and secure the production of that exclusively; and I begin to think that Mr. Harbison was right in holding the view that the production of so much extracted honey would prove a detriment to the honey industry; but now it is not so much the large production as it is the wholesale adulteration of it with glucose. It is evident, that, if the present conditions that menace extracted honey continue, it will be necessary to sell it at about two cents per pound, or near the price of glucose. While we have been busy getting our crop to market, we have heard but little about adulteration; but there are now mutterings in the air that may soon be heard, and that, too, I hope, with a salutary effect.

After the land sale, the visit to the factory, and the free lunch, etc., the wives hunted up their husbands, and, after a persistent effort, we succeeded in starting upon our homeward journey. That load of pie under the seat had not been touched, and Mr. C. had barely left the outskirts of the town before he wanted to stop and consume it; but the wives gave orders to proceed, which we did with evident reluctance. When we arrived in the outskirts of Ontario, however, five miles on our journey, Mr. C. pulled up peremptorily under some Monterey pines that lend a charm to Euclid Avenue; and seeing that there was no further use to expostulate, the wives also graciously descended from the wagons, and the pie-boxes were investigated. Suffice it to say, there were some terrible pie-dreams in the Clark mansion that night in consequence; otherwise the journey was pleasant and enjoyable, and the sugar industry gave us much to reflect upon for many days. That our industry of bee-keeping can not be conducted upon as large a scale is among the regrets of the Rambler.

SHALLOW FRAMES.

HOW MR. NASH CAME TO USE THEM, AND WHY HE PREFERS THEM; MORE ABOUT THOSE PERPENDICULAR CONE ESCAPES AND THOSE YOUNG BEES THAT ARE LEFT BEHIND.

In a footnote on page 883, the editor wishes to know how the writer manages as regards the *young* bees that would be left in the cases of honey tiered up with cone escapes on top, stating that, in his experience, it was for the most part young bees that remained in the cases after the smoking and shaking of the same, and these would be lost on emerging from the cones into the air.

Well, friend Root, I had this same objection that you raise myself; but after careful observation, which included the trapping of a lot of the little fellows as they left the piles of cases, and dusting them with flour, and then noting the reception they received at the entrances of the various hives, I came to the conclusion that the percentage of loss was small, as most of the bees that could fly seemed to enter hives, and I believe that the loss is more than balanced by the economy of labor; and in this day of low prices and sharp competition we must cut all the corners we can.

As regards your other question, "Why do you prefer a shallow brood-chamber?" I will say that my brood-frame proper is a swinging frame, 12 x 12 inches—American; that several years ago I began using a *surplus* frame 6 x 12, with closed ends; and the more I use them the better I like them. They have been of special value in the poor seasons we have had late years, as bees will often fill a half-depth case when, had they been given a full set of brood-combs, they would store but little or perhaps *no* surplus. I will say, however, that I have used these cases as brood-chambers on a small scale, and I believe that a colony will winter better in two shallow cases than one deep one, as the horizontal division of the combs in the center gives them free access to all parts of the hive.

I am also strongly in favor of "handling hives more and frames less;" and, in the light of present experience, were I to dispose of my apiary and its fixtures, I should certainly adopt a shallow self-spacing frame of some kind. I could then have a large hive for extracted honey, a smaller one for comb honey, thus settling the contraction business—a deep hive for wintering and brood-rearing, and a small hive for the weak colonies in spring; and for migratory bee-keeping we need a fixed frame; and it is some satisfaction, when you put up a colony for shipment, to know that the correct spacing of the combs will be preserved, even if you did not secure every frame separately before you closed the hive.

Another thing, who has not noticed combs (in the center of the brood - nest perhaps), with brood on one side and part of the other, and the rest gnawed down nearly or quite to the septum? cause—incorrect spacing. Tip up a few hives with loose frames, and see how the spacing is at the bottom. But, as a small volume could be written on this subject, I will close.

Monroe, Ia. J. A. Nash.

[Friend Nash has given us just the information we called for. Now, while we make and sell principally the standard L. frame, and while it might be to our interest to keep down any discussion that would bring to light the advantages of a shallow-depth frame, we desire to have our brethren speak out. Tell us, just as friend Nash has done, why you like shallow-depth frames, or why you do not like them, if you have tried them before.

Friend N. makes a strong point in favor of exact spacing—the facility of moving hives containing the frames with fixed distances. More and more the bee-keeping world is beginning to recognize this.—Ed.]

APICULTURE IN CHILI.

HOW THEY MANAGE SOUTH OF THE EQUATOR.

Nearly six pages of that excellent French bee-journal, the *Revue Internationale*, are taken up with a letter from Alfred Dufey, giving an account of bee-keeping in Chili. He reports that only pure Italians are found in Chili, no bees having been in the country before their introduction in 1834. (Why isn't that a good place for a queen-breeder?) Forty years later, in 1874, 84,000 colonies were officially reported. Of course, that number has greatly increased in the last 19 years. Many wild colonies are in the forests, and some *haciendas* (plantations) have as many as 1500 colonies each. The hives in use are of various forms—a brood-chamber containing from 15 to 30 quarts, with one or two similar stories placed over for surplus. Honey-plants abound, especially in latitude 30 to 38. The climate is colder than the corresponding north latitude, but not so variable. In November and December, corresponding to May and June in north latitude, swarms are plentiful, and can be bought for half a dollar each or less.

Honey taken by the natives is not very appetizing. Combs, brood, and bees are all mashed in one mess that neither looks nor tastes well. Others more civilized drive out the bees, but mash or melt the combs.

Some years ago a bee-keeper from France undertook the business of raising honey, but was discouraged by the difficulties. Hives were very expensive, and could not be had well made, and two extractors made in Chili cost the fabulous price of $50 each, and then he could get only about 2½ cents a pound for his honey. Prices are better now.

The harvest runs from the middle of December to the first of March, very rarely to the first of April, February being the best. An important item is, that foul brood and the bee-moth are unknown. The only trouble comes from moldiness of combs in the very damp winters, which is really the rainy season, for snow never falls in the plains, and the thermometer rarely descends as low as 4 or 5 degrees below the freezing-point.

The best source of honey in Mr. Dufey's region (southern) is the *ulmo*, one of the largest trees of the forest, covered with white flowers from the last of January into March. Laurestine, a shrub, is also a fine yielder, blooming during winter, being quite hardy. Other parts of Chili have other honey-plants, the flora being quite diversified.

Mr. Dufey commenced, a green hand, in 1888, with one colony, from which he obtained one swarm and 44 lbs. of honey. Since then he has allowed only a very moderate increase, his apiary now numbering only 30 colonies. Since the first year, his average yield per colony each year has been, respectively, 275, 103, 95, and 110 pounds, extracted. He gets 9 to 10 cents a pound, which is about double the average price of the average Chilian honey.

WEDDING-FLIGHTS.

In *Illustrierte Bienenzeitung* is given a very interesting table recording the excursions of a number of queens. In the opinion of the observer, K. Befort, there is always a preliminary flight merely to mark the location, and, in general, a plurality of after-flights—in one case at least ten excursions being made, fertilization occurring in no case till the third excursion or later. Time occupied in each excursion, from 10 to 35 minutes. Cowan reports a flight of 45 minutes.

One queen was fertilized on two different occasions. One queen flew when only two days old, one when 22. One queen was killed by the bees on her return, and Mr. Befort is of the opinion that such cases occur because of too small fly-holes. If there is a very small fly-hole it may be so filled with bees as to change its appearance so that the queen does not recognize it readily, and, in her doubt and vacillating movements, she arouses the suspicions of the guards, who seize her as an intruder. He recommends that the fly-hole be at least large enough for 8 or 10 bees to pass in and out comfortably at the same time.

HONEY VINEGAR.

An interesting communication from A. Prochaska appears in *Deutsche Imker aus Boehmen*. The writer manufactures honey vinegar and honey-vinegar essence in quantity, of such quality that it sells readily at a higher price than any other vinegar. The essence, as he calls it, is of such strength that the addition of nine parts of filtered soft water makes it vinegar of the best quality. This is convenient to ship long distances. He seems to have built up an important trade by keeping up his product to a high standard; and honey used to manufacture his product must come up to the following requirements:

1. The honey must be pure and transparent when in the liquid state.

2. The taste and smell must be good and pure, no matter whether the color be light or dark.

3. The consistence must be such that the honey shall be granulated solid throughout, or else in a thick fluid state. Thin honey, or that which yet contains a thin portion after granulation, is rejected.

Honey coming up to the required standard he receives from bee-keepers, paying .213 qts. vinegar essence for a pound of honey. As each quart of the essence makes 10 quarts of vinegar, it makes a little less than 2 pounds of honey for a gallon of vinegar.

It may be worth while to inquire whether if, in Germany, a market is thus opened for honey, the same thing may not be done here. Given the right man to establish a honey-vinegar factory, might he not make a good thing? The point is to make vinegar of such quality that it can have a sure market at a paying price. Each bee-keeper might do something on a small scale.

C. C. MILLER.

Marengo, Ill.

DOOLITTLE CELL-CUPS.

SOME OF THE ADVANTAGES OF USING.

There seems to be a good deal of interest manifested as to *what* is the best way to rear queen-cells. I have reared thousands of queens; have tried nearly all the plans known, but have found none as satisfactory and certain, and that gives as uniformly fine, large, and good queens, as using the Doolittle cups and having the cells built in the second story of *strong* colonies over queen-excluding metal. I find that cells built on Doolittle cups excel in strength. The thick base enables them to be taken off the sticks; are put into hives to hatch, and caged or handled in various ways more rapidly, and with less risk of injury to the inmates, than cells built in any other way. The uniform size and extra strength is a great advantage in caging cells when more than are needed are ready to hatch. These and other advantages more than offset the time required to make the cells. I have spoiled so many fine-looking cells built on combs, that were so frail I could not trim them to cage them, or that were ruined in cutting them out, and I have so little trouble with those built on "cups," that I use them nearly altogether. By watching the cells and culling out all that are not properly cared for, uniformly large fine queens may be secured. I "happen around" the day after giving cups and larvæ; and if any have not received proper attention they are destroyed; and I look after them again before the cells are sealed; and any inferior-looking cells are taken out, and the food used to start other cups.

I use cells from my best colonies when they swarm, but I do not see that they are a bit better than cells started from cups with larvæ from my best queens.

I suppose most bee-keepers have noticed that the first larvæ in a new swarm, during a good flow of honey, have a great abundance of food. Sometimes the larvæ in a colony are fed very scantily, and they seem to rest on the bottom of the cell instead of swimming in the food, as in the case of the new swarm. Larvæ from cells well supplied with food are not only more easily transferred, but I believe much better queens will be produced from them than from larvæ that barely have enough to eat, or may be half starved, for aught we know. Larvæ intended for queens should always be well fed; and, from the time the egg hatches, should have the most favorable surroundings possible, if the best queens are desired, and no haphazard way should be allowed.

This has been the poorest season for some years. Mangrove was a total failure, and the early crop was not an average one. We have had two gales this fall that stopped honey-gathering, and drowned out and destroyed a good many stands that were on the low lands. I believe one man, at least, lost all his colonies. I had 30 colonies near the river, and the water reached the combs of 9 nearly to the top of the lower story of part of them, but did not destroy any colonies. I had a few colonies blown over at my home yard; and as I was away and could not get back until the day after, they got to robbing; and as the honey-flow was entirely cut off, I let them alone. J. B. CASE.

Port Orange, Fla., Dec. 11.

TREATMENT OF FOUL BROOD.

ROOT'S PLAN INDORSED; A SCHEME FOR PRESERVING DISEASE-AFFECTED COMBS WITHOUT DESTROYING THEM.

In GLEANINGS for July 1, page 539, we have a most excellent article on foul brood, from Bro. Root, which, if fully carried out, will surely eradicate the disease; but we think it a little too expensive, and by permission we will try to supplement said article. We know we are liable to draw fire from all sides, as Bro. Alley and others say cremation is the only remedy; but, in the language of Burns, "My learned sirs, ye's may be wrang."

The first thing I will notice is in the symptoms. While Bro. Root gives the symptoms perfectly, I will say, don't trust the nose on foul brood. That is where I made my mistake years ago. While the *educated* nose will readily detect the disease, any one not acquainted with foul brood would pass it by and wait for a *terribly bad smell* that never comes, and so lose his apiary before he finds out what the matter is.

Now, while we have tried the remedies recommended in the books and journals, such as salicylic acid, barite of soda, fumigation with various things, etc.; and while we don't condemn them we must say that we failed in every instance. We have long since decided that "doctoring" larval bees is out of our line of business. Mr. Root says the phenol treatment is perhaps as good as any; but when it is strong enough to kill the germs of the *bacillus alvei* it will kill the bees too. We suppose he means the larval bees. Certainly it will; but it will save the comb, which is of more importance. Bro. Root speaks of phenol diluted 500 times. *It won't do.* We use it diluted only 50 times, and we don't trust the druggist to do the diluting either.

OUR PLAN.

After shaking your diseased colony off, and hiving the bees on comb foundation, as Mr. Root says, leave enough bees to care for the brood in the old hive, if it is worth caring for, until all the brood has hatched out—say 4 days; then make the second drive. The combs will then be mostly clear of brood; but keep the bees by themselves. *Don't* put them with any others unless it is with another just driven out, as they will carry the disease with them. Now for the combs.

Make a tank just large enough to take a comb and frame lying in the bottom, eight inches deep. Get a pound of pure phenol, or carbolic acid; have the druggist put it in solution with 2 oz. of glycerine. Make a bath of one part carbolic acid to fifty of water, or half a pound of carbolic acid to three gallons of water. Now take the combs, and, after extracting the honey, dip them in the bath, turning them so that you get both sides full. Put them in the extractor, and throw out the fluid, letting it run back into the tank. This fluid may then be put in jugs and sealed up for future use, as it holds its strength pretty well. Having made sure that every part of the frame is touched with the fluid, your combs are ready for use. If any of the combs have dead, rotten, or sealed brood, after dipping take a common bulb syringe and inject the fluid into the cells. It will surprise you to see how fast you can wash them out. Burn or boil all cloths; scald or burn out hives as directed by Mr. Root.

If your colony is not worth saving, don't try to burn it. Brimstone at night, when all are at home, if possible. Don't let a single bee get to you or away from you while working with foul brood, as that is the only way the disease is propagated.

If, after all, your bees take it again, they are either carrying it in from some other hive in your vicinity, or the queen is diseased, which, by the way, is a mooted question. But I have stopped it by simply killing the queen. Of course, I treated the partly drawn foundation as above. I have between 700 and 1000 combs in my home apiary, that have been so treated, that have never shown the disease since, and never will unless carried in by the bees. Use your combs for hiving new swarms, or for any other purpose. If the bees refuse to stay in, put an entrance-guard, such as is furnished by the Roots, on your hive. It will settle the question. Entrance-guards or queen-traps are a necessity. I give the preference to the entrance-guard, as it is more easily manipulated. But I use both.

Now for a few short rules.

1. Carbolic acid, or phenol, which means the

same, will kill all microbes if used in sufficient strength.

2. Allow no bees to get to or from you while working with foul brood.

3. If you destroy a colony, do it at night with brimstone. Kill them all.

If you follow the above you will beat the disease. Southern Illinois is full of it. and has been for ten years. We have treated it for that time with varying success, until we adopted the above treatment, which has proved successful.

Enfield, Ill., Dec. 15. A. C. Mitchell.

[Our correspondent evidently writes from experience, because his article shows that he has been "through the mill." We are not surprised that he should condemn all the various acid treatments, of the strength recommended. These "medicine cures" are proving everywhere to be no cure at all. While we know that phenol. or carbolic acid, reduced 500 times, as recommended by Cheshire, will not effect a cure—at least, failed to do so in our case and recorded reports we have read, we see no reason, however. why, when reduced only 50 times, it should not disinfect the combs. If combs were good. and well wired in good frames. it might be advisable to wash them in carbolic acid, as described, instead of burning. However, if we had only one or two colonies that were affected we should hesitate to try any thing else than burning.—Ed.]

THE OLDEST BEES IN THE WORLD.

HOW BEES HAVE BEEN PRESERVED SINCE THE TIME OF MOSES.

It is well known. that, in 1881. many royal mummies were found in Egypt—that is, the embalmed bodies of kings. For a good while after that, scholars observed that cartouches and rolls of papyrus were sold on the Egyptian market. bearing the names of kings. As to where the mummy-diggers obtained these, our learned men at Cairo were at a loss to tell. The venders of these curiosities were sought for. It was soon evident that most of them came from three brothers who lived in Deir el-Bahari. These men were accordingly taken into custody. During a long examination none of them would reveal the secret. Neither threats nor promises were of any avail in making them set a price on it. The men had to be set free. Soon after that, one of the brothers came to an officer of the Egyptian museum of Boulaq, in Cairo, and said, "I am *now* ready to make a full exposition."

"And why *now* for the first time?" said the official.

"Because my brothers have robbed me of the profits of my share."

The betrayer then conducted Brugsch Bey (brother of the celebrated Egyptologist) to a pit 60 feet deep, and showed him a cavity where there were several mummies of kings well preserved. For three days and three nights 300 men, under guard of soldiers, were employed in bringing the valuable find to the light of day. These mummies, photographs of which were taken. are in the new museum of Gizeh. It is related that the mummy of Pharaoh (he who oppressed the children of Israel), that it might not be destroyed on board the steamboat, was put on a little skiff in tow of the steamer. At the next railroad station the mummy was put on board of a first-class car, and thus the remains of Pharaoh were removed to his capital city some 3450 years after he had ceased to rule. In removing the folds of linen from about the body, several flowers were found that had been buried with him; and in a cup were found several mummied bees—the oldest in the world. The size of these bees is exactly that of Italians, with brighter yellow abdominal bands.

Medina, O. Karl R. Mathey.

JAKE SMITH'S LETTERS.

HOW TO KEEP HONEY FROM CANDYING; SOME GOOD INSTRUCTIONS.

Mr. A. I. Gleenings:—deer Sir:—Ime glad I made your acquaintents. Ive lurnt a heep from your paper and your book. The fixtyours I got from you was 1st class, and I feel now like I was commenst beekeepin on the right track. My boy Zed, too, he's taken to beekeepin wonderfull. I wish I cood a node as mutch when I was his age. He's rite smart.

About a mile and a ½ from us is a nayber who keeps bees, which his name is Short—Jim Short. Only he aint like his name, he's rite tall. He doant beleive in the improoved ways, and makes fun of what he calls my noo-fangled ways. But weer good friends, and he's so good harted I like to talk with him.

Last summer I found out they was a man only 8 miles from me which keeps bees clear up to the times. He farms it, but good years he claims he makes more on his bees than ennything on the farm. He is brother to the onnerable Jared Dinant which was in the state legislater. His 1st name is Henry. I met him at a quarterly meetin over to Stallstown, and when he found out I kep bees he ast me to cum and see him. I cum, and I had a reel good visit. He knows lots about bees, but he sez there's a heep more he doant know.

Weave had severl visits back and 4th, and he encurridges me that Ime doin rite well in the noo plans. He's took dinner evry time with us, and one day he sez while he was a eatin some hunny, sez he, "That's fine."

"Yes," sez I; "hev some more."

"Do," sez my wife. "Make yourself welcome," sez she. And she cut off a rite good hunk and put it onto his plate. If they's enny 1 thing more than anuther that pleezes my wife, it's to see cumpenny like her vittles and eat harty.

"It seems to me,' sez he, after he had eat some more of it, and looked like he was tastin it careful and studyin over it, "it seems to me," sez he, "that it's uncommon ripe for so erly in the season. When did you take it off?" sez he.

"Let me see," sez I; "aint that some of the 1st was took last yeer, mother?" sez I.

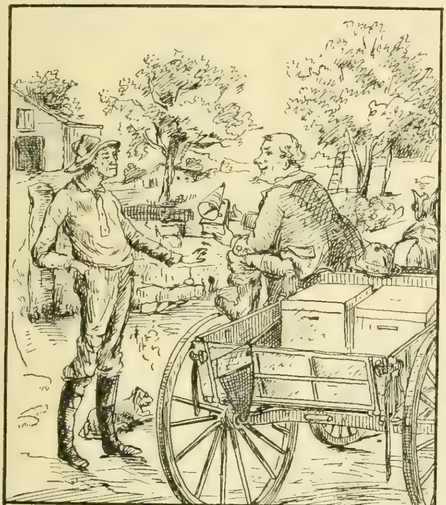
"Yes," sez she, "that's some of the very 1st drawer was took," sez she. "It was so white and nice Ive kep it kind a choice."

Then Mr. Dinant lookt supprised, and he sez, sez he, layin down his nife, sez he, "Do you mean to tell me that youve kep that hunny for mourn a yeer?"

"Why, sirten," sez I; "we always hev enuff to last from 1 yeer to anuther."

"Well, I declare!" sez he.

"Why, I thot evry buddy that kep bees hed hunny the yeer round," sez I.



Tell yer Jake! Them new fangled fixin's dont work thataways I dont beleive in 'em.

"That aint what I meen." sez he. "It's the condishen. Cobm hunny doant offen keep like that over winter," sez he. "Now I wish yude tel me before we go enny farther whair you keep your hunny."

"Up in the garret, doant you, mother?" sez I.

"Yes," sez she, "up in the garret."

"What was the tempertoor up there?" sez he.

"Hot as blazes in summer," sez I, "and cold as Greenland in winter."

"And does it never candy in the winter, nor the cobm crack?" sez he.

"Not as I ever noticed," sez I.

"Yes," sez Zed, "when it's put there late in the season, without bein capped over, then it candies and cracks too."

Then Mr. Dinant began askin Zed questions, and it turned out that Zed had been studyin on the things a good eel, and he give us his notion about it.

"It's this way," sez he. "You know if you cook sugar surrup, it makes different kinds of candy, accordin to how much you cook it, and it's a very different thing if you cook it a big lot. Well, it's a good bit the same way with hunny. When it first comes from the field it's thin stuff, and ittle sour and candy without half trying. But after it's kep in the hive it gits cooked down and sealed up, and then it keeps. Hunny and neckter is two different things. Up in the garret it gits cooked still more, so it woont candy nor crack, no matter how cold it gits. The hive-cooked hunny is different from neckter, and the garret-cooked hunny is different still from the hive-cooked hunny."

"I declare!" sez Mr. Dinant. "I beleive you've about struck it, Zed. It is true, a sirten grade of heat makes a change in the caracter of sugar in solution, and why not in hunny? When sulphur is heated to a perticular degree, it changes and becomes like rubber, remaining so for months. My thought has always been that the only thing that heat did to hunny was to evapperate the moisture out of it, but accordin to Zed's philosophy it not only becomes thicker in the garret, but undergoes a real change. I see no reason why it may not be so changed that it can resist the effect of cold. I wonder," sez he, "if another result may not follow. I wonder, after it's garret-cooked, as Zed calls it, if it may not resist the action of moisture. You know if sugar is dissolved and then heated to a sirten point, it makes a candy that gits damp and melts in the open air, while granulated sugar from which it was made, lyin right beside it, stays dry. Perhaps cookin hunny to the right point makes it so it woont attrack dampness from the air."

Now, Mr. Gleenings, if you tell the people to cook their hunny in the garret, it mite be a good thing. You mite make sumthing like wax-extracter, only leave it a little open, sose the steam cood git out, and sose it woodent git too hot and spoil the hunny.

Zed's been a tryin to git me to lurn to spell, but it's up-hill buisness. So menny words is spellt all wrong. I doant see much sents to it.

JAKE SMITH.

CALIFORNIA ECHOES.

BY RAMBLER.

Hasty, in the *Review*, thinks that chestnuts are the main ingredients in the articles that treat upon wintering. Of course, we Californians will agree with him there, for we skip all of those articles. But say, Bro. Hasty, are there not chestnuts in a great many other articles? Is there not danger of their becoming *all* chestnuts? Then imagine what a wry face you will make in testing and condensing. Preserve your good looks, Bro. H., and quit in time.

Another bee-keeper shot! M. H. Mendleson, the great bee-man of Ventura, recently fell before the arrows of that little winged wretch named Cupid. Mrs. Ella Frear, of Denver, is the happy woman. Sorry to lose you from our bachelor ranks, friend M.; but what can not be helped must be endured.

What a sad thing it is to hear
Of great bee-men getting out of gear!—
Tangling themselves in apron-strings,
Bonnets, hairpins, fumery, and all such
things!

That is a very good idea advanced by Mr. Alley about experiment stations. One station and one experimenter will hardly fill the bill. The great desire of us Americans is for controversy; and with several stations the doctors will be sure to disagree, then what lively times we shall have! Let's have more stations. We want one right off in California.

California bachelor bee-keepers owe a debt of thanks to Dr. Miller for that washing recipe on page 842 of GLEANINGS. The Rambler has pasted it in his hat, so to speak. Why! what's the use of having any women around when we can bake our own flapjacks and wash our own clothes? Take courage, Messieurs Bachelors. Dr. M. is on our side.

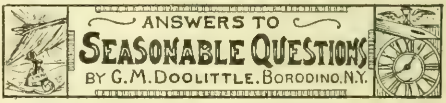
The Stinger seems to think that the Rambler is writing in a sensational vein. Well, I described that death of the bee-keeper Bohn just exactly as it happened, and did not throw in any of the wild incidentals that surrounded the inquest. If it was written in a sensational style it was done so unwittingly on my part, while, on the other hand, the Stinger *tries* hard to write something sensational and *can't*.

Button, the murderer of the said bee-keeper Bohn, has just had his trial, and the verdict of the jury was "manslaughter." The culprit gets seven years' imprisonment. Public opinion would have hanged him until he was dead.

Well, there! I was just going to mop my floor; but I won't do it now. It has not been mopped in two months, and then it was only scrubbed with an old broom. But see what Hasty calls a mop—a *Christian Dagon*—and fourth cousin to the devil (or saloon, which means the same). It makes my hair stand on end to think of what a narrow escape I have had. I will throw that old nasty *Dagon* away out into the bushes early in the morning. I think that other bee-men in California have caught on to this before, for I never see any Dagons around their shanties. Then just think of it—what a floor Hasty must tolerate!

Though we have not much wintering troubles here in California, I think much care should be exercised in putting the bees into proper shape for what little winter we do have. We have quite cool nights, if nothing more; and the practice of many bee-keepers in leaving the extracting supers on the hives, even when piled three supers in height, is not a plan to be commended. A colony of bees will be stronger in the spring, as a general rule, and build up faster, if they have been confined to the brood-chamber and tucked up warm with a quilt. There's no harm in leaving the supers on, but see to it that the quilt confines the bees to the brood-chamber.

[Short paragraphs, giving little nuggets of information, are becoming more and more appreciated by the reading public. The reason of this is, that the pith is more easily assimilated by the mind, because it does not have to hold in logical array every point suggested in a regular article. You will see by the above that Rambler proposes to carry out this idea for the California bee-keeping interests.—ED.]



ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO, N.Y.

HOW TO KNOW WHEN BEES ARE WINTERING WELL IN THE CELLAR.

Question.—I am a beginner in the matter of wintering bees in the cellar, and I wish you would tell me just how I may know when my bees are wintering well. By knowing the conditions of wintering well I can tell whether I am right or wrong as I have them.

Answer.—It will be very hard to tell all about this matter of the well wintering of bees, in the short space we feel at liberty to use here. Perhaps the best I can do is to tell just how I find my bees in the cellar this 14th day of December, as I have just come from the cellar, having just gone in with a view to answering this question, and having found the bees *wintering well*, according to my views in the matter. The bee-cellar is perfectly dark—so dark that it is impossible to discern even the faintest outline of a large piece of white paper carried in with me. The four doors have all been shut behind me, which lead into the cellar, one after the other as I went in, so that no disturbing ray of light or breath of cold air should arouse the bees in the least. Being in total darkness I stand still and listen, for in this listening we can tell more about how the bees are wintering than by any other one thing after we have struck a light. The sound I heard when listening is best described by the low murmur of a gentle breeze in the distant tree-tops, or, as I once wrote, a hum of content, with now and then, say once in 20 to 30 seconds, a faint "zeep, zeep," of a single bee, as we often hear in the summer time, only much more suppressed, while on an average of about once in every two minutes a single bee will fly out from some hive to the cellar-bottom, which is readily told by the sound of its wings. There are 60 colonies in the cellar, and the above describes as best I can all that could be heard during ten minutes of standing perfectly still before striking a light. Where mice are present in a cellar, their presence is more quickly detected in this way than with a light, for they often make a clattering about the hives, easily heard in the deep darkness and stillness that reign. If you have only a few colonies of bees in your cellar you may be obliged to place the ear near the hives to hear their low hum, and stay an hour to hear a bee fly out; while if there are 200 colonies the hum will be louder, and bees fly out oftener. If the bees are in the house-cellar you must get up before the family in the morning, when all is still, in order to test this part of the matter. I next strike a match and light a spermaceti candle. With such a candle you can get a much more satisfactory result, without annoyance to the bees, than with a lantern or lamp ; and as they can be obtained at any country store, I would advise their use in the bee-cellar. Having the light, I proceed carefully along the rows of hives, looking closely for any traces of mice; for, do the best I can, I have more or less trouble with these pests. The presence of mice is detected by finding heads and abdomens of bees, with the thorax gone or eaten up, and by fragments of comb under the hives. If these are found, set a trap for the mice—a common choker trap being as good as any; and for bait I find a squash or pumpkin seed ahead of any thing else.

Having the mouse question settled, I next look at the bees at the bottom of the combs. Where wintering well, only rows of abdomens will be seen, the points all standing outward, and nearly or quite motionless. Be careful not to breathe on the bees or hold the light too near, as they are easily aroused in this way. Few sights which I have ever seen give me so much real pleasure as to look on these hundreds of motionless abdomens of bees, especially where they come down evenly between the ranges of combs so as to make them appear like soldiers drawn up in column for battle. I sometimes raise the cover of a few of the hives and look in at the top of the frames; but as this can rarely be done without disturbing the bees, it is better not to do it.

Lastly, I look at the temperature, and I find it to-day to be 45°, which I consider just right, although, should it fall to 40°, the bees would show little if any difference, except that the murmur heard in the cellar would be louder. If warmer, the rows of abdomens would not be as compact, and they would be easily disturbed by the light. As it approaches spring, the hum of the bees will become louder, and the waste of bees flying out and dying on the cellar-bottom will be greater, even when wintering perfectly.

BEES ROARING.

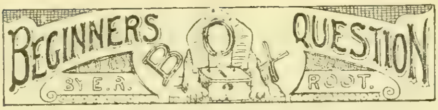
Question.—Upon going into my bee-cellar today I found one of the colonies roaring, or making more noise than all of the other forty-odd colonies put together. Indeed, this colony was roaring as bees do evenings during a heavy honey-flow. What caused this roaring? is it a sign that this colony has the diarrhea?

Answer.—It may be well to keep watch of this colony a little; yet I suspect that, the next time you go into the cellar, you will find this colony as quiet as any; for, without more light on the subject, I should say that this colony was in the act of taking honey into the cluster. Where bees are wintered out of doors they generally "break cluster" with every warm spell which comes, and go over to the outside combs of sealed honey, uncap the same, and carry what they think they will need during the next cold spell over into the center of the combs they cluster upon. This, in a measure, insures their safety from starvation should the cold hold out longer than the sealed stores immediately above last, as they have this much in addition. In thus carrying honey, the whole colony is aroused, and a merry hum given off, the same as with colonies when being fed in the fall; for, so far as I have observed, bees never move honey from flowers, feeders, or the combs but that this hum of happiness is heard. Now and then a colony will carry honey into the cluster while in the cellar, doing this as often as the unsealed honey is consumed, which will cause the "roaring" spoken of; but the majority cf colonies seem to think this unnecessary. If I am right in the above, and I think I am, the roaring would be no sign of diarrhea.

BEE-MOTH LARVÆ KILLED BY FROST.

Question.—I have a lot of combs which I have taken from the bees this fall, and I should like to insure their preservation from the bee-moth for a year or more. Will frost destroy the eggs and larvæ? If so, what temperature will it take to do it?

Answer.—Opinions differ about this, some asserting that a temperature of 25° above zero will destroy the eggs and larvæ of the bee-moth, while others think that a zero temperature will not kill the larvæ, but may destroy the vitality in the eggs. I once saw what I supposed to be a bee-moth larva crawling on the floor of my shop where I was warming some combs that had been exposed to a zero temperature, in order that I might straighten them, as I have given in an article on how to straighten combs. I would have taken my oath, after a careful examination, that said larva was my old acquaintance, seen in the hives in summer; but wishing to be sure, I sent it to Prof. Cook. He replied that it was the larva of the codling moth. From this I am inclined to think that those claiming that a zero temperature will not kill the bee-moth larvæ are mistaken, as I have never known my combs to be troubled afterward when exposed to a zero temperature.



BEGINNERS' QUESTION

BY E. R. ROOT.

W. E. D., of Va., wants to know whether the cover should be put on the hive again after putting the chaff cushion in. *Ans.*—Why, friend D., what reason should there be for leaving it off? Of course, you want to put it on, otherwise the cushion would become soaked from rains, and thus defeat the very object of the cushion—namely, making a non-conductor to the cold.

B., of Can., asks how long foundation may be kept. *Ans.*—The experiments conducted by R. L. Taylor, as recorded in our issue for Dec. 15, together with the noted observations of G. M. Doolittle in the previous number, go to show that old foundation is nearly if not quite as good as new. Foundation does become a little harder with age, but it may be softened by immersing it in water that feels hot to the hand.

R. A. McP., of Ill., wishes to move his bees a distance of 5 miles, and would like to do it during the winter months. *Ans.*—It is usually desirable to move bees in the spring, about the time they will begin to fly. But it can be done during mid-winter; but we would select a day when the sun is shining, when the temperature is above freezing, else the combs will be more liable to break, and disturbance to the bees be more serious.

W. E. F., of Va., would like to know how to prevent bees from mixing. *Ans.*—We do not understand exactly what is meant by this question. If W. E. F. means that he wants to know how to prevent queens from mating with inferior or other drones, we would say, put on drone-traps or entrance-guards to all entrances of hives containing undesirable drones. As to the mixing that takes place from entrance to entrance of hives that are situated close together—*bees* going from one hive to another—that will make no serious trouble.

H. C. M., of Ill., would like to know whether it makes any difference whether a honey-house be made of brick or not. *Ans.*—Brick would be considerably more expensive, and we doubt whether it would be as good. While brick *dwellings* do very nicely because artificial heat is used inside, they would be poor places for the storage of honey without that artificial heat. He asks further as to the advisability of putting honey into empty molasses barrels or kegs. *Ans.*—There would be no objection, providing such receptacles were washed out with hot water.

J. R. C., of Cal., wants to know how to get bees out of rocks. *Ans.*—If you want to have a little fun, blast the rocks; but perhaps you may then get neither bees nor honey in shape to be of any service. We do not know how the bees can be gotten out except by trapping the bees out with a bee-escape.* Keep the escape on for three weeks till every last bee has gone out. In the meantime put the first catch of bees in a hive on the outside, near the entrance of the rocks. After the bees have all hatched out, and gone from the cavity in the rock, we are of the opinion that, if the escape were removed, the bees now in the hive would rob the honey out of the rock, and put it into their new quarters. J. R. C. asks further whether turpentine or any other liquid of strong scent, if poured into the entrances, would probably drive the bees out. *Ans.*—We do not know. Possibly a weak solution of carbolic acid poured in might drive them out. Try it and report.

E. R., of W. Va., asks: "Can I use perforated zinc as a screen on the entrance of the hive during the swarming season, to prohibit swarming? If not, why not?" *Ans.*—Yes, you can, and to a certain extent it will check, or, rather, prevent, runaway swarms; but it is, to a greater or less extent, unsatisfactory. The bees must either be gratified in their natural desire for swarming or they will fritter away their time in making unsuccessful attempts in swarming out, trying to get the queen to go out with them; and their failure to thus accomplish their purpose will end up in their killing their queen; and in all probability the honey season will have gone by, and no honey will have been gathered. If you have an outapiary, entrance-guards may very often be used to advantage; but we should prefer to use the Pratt automatic hiver, as illustrated on page 125, last year.

D. G., of Neb., has quite a number of colonies that had foul brood last fall, and asks (1) whether the honey in the foul-broody hive would be fit to eat, without extracting and heating; and (2) whether, after boiling, it would do to feed to bees with safety; and (3) is there any way of disinfecting the hives so that they may be used with perfect safety? *Ans.*—(1) Such honey would taste all right; but we would not advise you to make any use of it, for bees will very often make their way into the house; and if one of them should *happen* to get a sip of this infected honey it would carry the disease to its colony, and thus spread it all over the apiary again. (2) Yes. (3) Hives may be cleansed by immersing in boiling water, as directed in the A B C you have. It is also *possible* that they may be disinfected by the use of carbolic acid reduced 50 times, the same painted on the inside and outside of the hive, as directed by a correspondent in this issue. That is the way we painted our house-apiary before putting any more bees in it.

P. W., of Pa., asks, "What is the best covering on top of the brood-frames for wintering colonies outdoors in double-walled hives?"

Ans.—We always make it a practice to remove he enamel cloth (if in a chaff hive) and put n top in its place a sheet of burlap. Any old arpet or old cloth that has not been waxed or meared up with propolis would do just as well. n this put the chaff cushion, but be sure there s a passageway over the combs, under the bur-ap. We use Hill devices; but many others use, vith equally good effect, sticks or corncobs cross the frames. P. W. asks again, how it vould work to place on top of a strong colony, the spring, to get increase, another hive filled vith foundation; after the queen was laying bove, to lift the top hive off, and set it on the ld stand, and take the old one and put it on a ew stand a few feet away. *Ans.*—This would ork all right *providing* your colony was extra rong. But usually, in the spring, such a plan ould only be working mischief. You would ave a lot of weak spindling colonies that ould be practically good for nothing at the me of the honey-flow. It is better to secure ll the increase possible inside of the original arent colony.

Heads of Grain,
ROM DIFFERENT FIELDS.

ROPORTION OF ACID TO WATER IN WAX-RENDERING.

Please tell me how much acid I need to use in eaning 100 lbs. of cappings; also what kind acid I need to call for.

Douglas D. Hammond.

Malone, Ia., Nov. 13.

[For rendering cappings, no acid will be eeded. Sulphuric (and that is the acid we use) or should be used on dark or dirty wax. We not use it stronger than about a quart of id to a barrel of water. More often the soluon is much weaker than this. Much depends pon the kind of wax to be worked.—Ed.]

SECOND SWARMS BY THE HEDDON PLAN.

We have 10 colonies of bees in the Langstroth ive, and we are never troubled with second varms in this hive. I bought four colonies in x hives in the last three years. We let them varm the second time, and then drummed em out. Three seconds out of the four came t the 15th day after the first swarm; one on e 12th day. I don't see why any person ould have second swarms in the L. hive. We ver cut queen-cells except for nuclei. We ork the Heddon plan at swarming time. here is no danger of second swarms. We had e swarm make 300 lbs of extracted honey, d another make 125 lbs. of comb. The aver-e of the others was 125 lbs. extracted.

John F. Bettridge.

St. Marys, Ont., Dec. 4.

ALSIKE CLOVER PROFITABLE FOR HAY AND CLOVER.

I can not think of doing without Gleanings. Through its instruction I was induced to sow alsike clover, which I have been doing for the last ten years, and find it a profitable farm crop for hay, pasturage, and especially for honey. We had 1500 lbs. of honey this year, and I am quite sure 1000 lbs. of that came from alsike. I was induced to have my "haystack" hulled this fall; and even if it was half timothy we got eleven bushels of very fine alsike clover seed. My neighbors have seen its utility, and the seed is nearly all sold at $10.00 per bushel.

Joy, Ill., Nov. 28. **W. M. Miller.**

PUBLIC OPINION AND THE NON-SWARMERS.

How public opinion does change in regard to the swarming or non-swarming of bees for the best results in honey-gathering! If those who advocated swarming in a late issue of Gleanings had no better fall flow than I am expecting here every year, they would do their best to get what white honey they could, and then leave the dark for the winter stores. Ask those who cage their queens, and see what *they* say about more or less honey to the hive.

H. P. Langdon.

East Constable, N. Y., Dec. 8.

[Yes, we should like to hear from the queen-cagers.—Ed.]

HOW QUEEN-CAGE CANDY IS AFFECTED BY CLIMATE IN AUSTRALIA.

I received two queens from Mr. Doolittle a few weeks ago, both dead, and had been for some weeks, I should say, by the appearance. The candy was so hard I could hardly stick a knife in it; but in a few days after, I was talking to a bee-keeper and I said the candy was too hard. I reached him the package down to look at, and the candy had become quite moist, and in grand condition for bees. Of course, it is the climate. **R. H. Jervis.**

Moss Vale, N. S. W., Australia, Oct. 30.

[This verifies the opinion we have expressed before; viz., that our present queen-cage candy is quite liable to be affected by the excessively hot (to our way of thinking) climate; and it is not possible, with the present method of making, to have the candy always just right when it reaches the hot climate. So far as we have tried, the Good (or Scholtz) candy is altogether the best.—Ed.]

OLD FOUNDATION AS GOOD AS NEW; THAT "LONG LEAN YANKEE."

Bro. Root:—Do you remember the second day of the convention, how that long lean Yankee (I do not remember his name) from Missouri, I believe, that argued against Bro. Taylor's fine-spun theories? He was a comical genius; but I think that, if he were to look at the bee-business in the right light, he would see that even farmers, if they do not learn the nature and ways of their bees, and how to handle them successfully, ought not to expect any profit from them.

I agree with Bro. Doolittle, in Dec. 1st GLEANINGS, that foundation is good for several years. I have some three years old, and do not see but it is as good as new. I do not allow it to freeze, for that cracks it; and then it is of no use.

I have read all the articles in GLEANINGS about sealed covers in wintering, and will say that, to my knowledge, there are no bees wintered in any other way, in this vicinity. I put my bees in the cellar and cover the sealed covers with old carpets, and they winter well generally. SUPER LIFTER.

Columbus, Wis., Dec. 8.

YELLOW JASMINE, THE POISONOUS HONEY-PLANT.

The writer spent last winter in Florida, where the yellow jasmine blooms in great profusion in February. Notwithstanding this plant is said to be poisonous, the fragrance of its flower is not only delightful to mankind, but also very attractive to the bees, which work on it in great numbers. During last spring you had an article in GLEANINGS on the poisonous character of yellow-jasmine honey, which reminded me of the statement of an old gentleman living in Florida, one familiar with the plant since childhood, who said, "The honey made from the yellow jasmine is poisonous, and people who ate of it became temporarily blind; but they were soon relieved by drinking freely of sweet milk. Further, there need be no mistake made in the honey, as the bees do not cap poisonous honey." M. ARTER.

Hoopeston, Ill., Nov. 30.

[We have never seen it stated before, that the bees would not cap poisonous honey. We have a good many subscribers in the locality of the yellow jasmine who can give us facts bearing on this point. How is it, friends?—ED.]

ESTIMATING THE PRODUCT OF COMB HONEY.

If there are many bee-keepers like myself, I am afraid the scheme of estimating the amount of comb honey produced, from the number of sections sold, will not give very accurate results unless a term of years is taken and an average found. I always believed in having plenty of sections on hand. Costly experience had shown me the wisdom of this. But we have had such poor honey seasons that I have not used as many sections as I expected, while the farmer bee-keepers, who used to buy a great many sections of me, have no bees now, and no use for sections. Accordingly I have a large stock of sections bought two and three years ago. Last year I bought more, and I do not expect to buy any next season. That's one comfort of these poor seasons. I'm not spending much money for bee-supplies nowadays.

NARROW BOTTOM-BARS.

In 1892 I made a number of frames for m shallow double-brood chamber hives, with th bottom-bars a little less than ⅜ square, to see i this would cause the bees to fill the frame more perfectly with comb, instead of leaving space next to the bottom-bar, as they generall do. They were a success for this; and if I use a brood-chamber of only one story I should cor sider the narrow bottom-bar a valuable improve ment. When these frames are tiered up, thoug the bees build comb around them, and betwee them and the frame below, so that they becom a nuisance. J. A. GREEN.

Dayton, LaSalle Co., Ill., Dec. 19.

[Your point is well taken, and we have there fore asked Dr. Miller to secure figures fro manufacturers of sections, giving their averag annual product made for the United State covering a series of three or four years. W know ourselves, and think the other manufac turers will know pretty well what their annu product amounts to, *on the average.*—ED.]

TABLE SYRUP DIRECTLY FROM LOUISIANA SUGAR-CANE.

Mr. Root:—I ship you a half-gallon jug Louisiana pure cane syrup. This syrup is ma by boiling the juice of sugar-cane down to density of 35 degrees, and it will keep in a climate for a year without turning sour or sugar. It is unlike molasses, as there h been no sugar taken from it. It is an excelle bee-feed, and a fine table syrup, and general used in the South in the place of New Orlea molasses, which has about all the sugar tak from it. Please test the sample on your tab and as a bee-feed, and report upon it in GLEA INGS.

Should you wish to purchase any I should pleased to fill any order you may give, from m syrup-house here, in half-barrels of about gallons, or barrels of about 52 gallons, F. O. cars Illinois Central R. R., at 40 cts. per gall —barrel included.

I am keeping a small stock of bees here, mo for diversion than profit—having been one the extensive bee-keepers at Munnsville, Mad son Co., N. Y., with a stock of usually 200 col nies, running exclusively to extracted hone previous to coming south five years ago.

The great drawback to successful bee-kee ing in New York—the wintering problem—do not trouble us here. There is scarcely a d but bees fly. F. D. WOOLVER.

Kentwood, La., Nov. 27.

[We can recommend the above syrup as bei much superior, in our opinion, to the syru usually found in our stores north. When I fir tasted it, it occurred to me that we used to g molasses from the South, years ago, very mu like it. Since the modern inventions, in t way of draining the molasses from the suga nd the more modern one still of making the reater part of it glucose, I have gradually ome to have a dislike to any syrup except maple. This, however, is a good deal cheaper; nd I should say, from the test we have made, t is just as wholesome. If this notice should ive friend W. a trade in the syrup, I shall be lad of it.]

GLEANINGS IN BEE CULTURE

A Journal devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year.

So the sun stood still in the midst of heaven, and hasted not go down about a whole day. —JOSH. 10:13.

JAKE SMITH will have something rich in our ext issue. By the way, Jake has been posting imself up, and is about to assume the *role* of structor.

OUR bees are wintering nicely so far—indeed, uite a little better than they were last winter this time under sealed covers. They are w all under absorbents.

IN our last journal, page 940, we said Prof. ook had been writing more articles on the ubject of sugar honey for *apicultural* papers, hen we meant to say *agricultural*.

WE are compelled to omit our last Book Reew in this issue, as lack of time renders it possible to get any proper idea of the eight ten books remaining, in the short space altted between the issues of our journal. It is e intention to give simply a general idea of ch one.

WE saw an item lately, in one of the mechanal papers, to the effect that, for small powers, s and gasoline engines were much more ecomical in cost of running than the steamgine. For large powers, the case is reversed. ere it not for the fact that gas and gasoline gines cost two or three times as much as eam-engines of the same power, the beeeper who wants to run only one or two buzzws had better use the gas-engines. The time coming when gas-engines will be made as eaply as steam-engines, and then—good-by the small steam powers.

ON another page we present to our readers ird's-eye view of the Home of the Honeyes. It is generally pronounced, by every one re, to be an accurate picture. We especially sired our artist not to exaggerate any of our ildings; and while perspective may, perhaps, oduce a slightly different impression, yet the ew as a whole is wonderfully accurate. This cture is taken from a water-color painting at was on exhibition at the World's Fair, over r exhibit, and is now hung up in our office. We are sorry we can not present to you the realistic, lifelike look of the original. It is, perhaps, unnecessary for us to go into details in regard to the different buildings; but should the reader desire some facts with reference to the growth of our business, he will find them on page 849, 1891.

IT seems that the bees, away back so many thousand years ago, spoken of by Mr. Mathey in another column, must have been very nearly identical in appearance to the present Egyptian bees; if this is true, bees do not change their general appearance. Mr. Mathey saw the bees himself, while in Egypt. We might mention, further, that he is now and has been for a long time a contributor to some of the best bee-journals in Austria, in both the German and Hungarian languages. As yet he writes no English, so the translation of his manuscript has devolved upon W. P. R. so far.

A SHORT time ago one of the food-inspectors, after giving a long list of certain foods, including honey, that were adulterated with various compounds, ended up by saying that wheat flour was adulterated with potatoes. The proprietor of one of our milling establishments quickly took him to task by saying that, as long as wheat could be bought for 55 c. a bushel, it was altogether improbable that they would put in potatoes at 75 cts., or 1½ times its cost, even if such adulteration were possible. Our food commissioners have been doing some good service, and, as a general thing, are not far from right; but they want to be careful and not make such stupid blunders as in the case of the wheat and potatoes. As long as it does not *pay* to adulterate, there will be no such thing as adulteration.

AMONG our old bee-books we find an edition of Huber included in the "Naturalist's Library," published by Henry G. Bohn, York St., Covent Garden, London (the publisher of Huish). The book contains 300 pages, and is beautifully illustrated with copperplate engravings in colors. We purchased this copy, with the other old bee-books which we have been reviewing, of W. P. Henderson, Murfreesboro, Tenn. The different bird and insect enemies of bees are shown in this volume true to life, both in outline and color, making it altogether the prettiest book we have yet reviewed. If any of the readers of GLEANINGS can find another copy like it, we should be glad to correspond with them. Sometimes books of this character can be found in second-hand bookstores, where the proprietor has no idea of their real value. This book was printed in 1852, and was edited by Sir Wm. Jardine, Baronet.

IN the last issue, Dr. Miller voted strongly for the footnotes. We suppose, if they have any thing of value in them it is because of the fact that the editors have been in the homes of the most of the prominent bee-keepers of the land, and carefully inspected their methods. Besides their (the editors') experience in the apiary, they are supposed to read, and have read, almost every thing that comes to the office, on the subject of bees, besides reading once or twice the matter that goes into the journal. This gives them a pretty fair idea of what is practical, and what methods and plans have been suggested in the past, and whether these plans and methods have proven to be a success or failure. But we presume the principal feature of the footnotes that is most appreciated is the conversational feature, and that, if the ideas of a certain article are indorsed, it gives it strength and value. If not indorsed, it places a caution on it. However, we do not hold ourselves to be infallible, and are glad to be corrected, even if the correction does not come clothed in the smoothest language.

WE doubt whether any living man is better informed in regard to every kind of hive now in use the world over, together with the many methods of handling bees in all lands, than is Mr. Karl R. Mathey, lately of Kesmark, Upper Hungary, but now of the Home of the Honey-bees. With an amount of trouble and pains that seems absolutely astounding, Mr. Mathey has drawn off, in large blank books, a description of nearly all hives known, together with the minutest parts of all of them; and this description is accompanied with pen-drawings of the same, executed in the most beautiful and artistic manner. The books are written in the German language, and constitute a complete summing-up of practically every thing known in reference to hives of all kinds. The human figures represented in Mr. Mathey's drawings are quite laughable, and are of the same nature as the "Brownies" with which our readers are doubtless all familiar. It is Mr. Mathey's present intention to favor us with short articles from his pen during the year. To learn our language and our ways of doing business in this country, he has taken a position here in the same spirit that Peter the Great, of Russia, disguised himself and went to Holland to learn how to make ships for his own navy. His first contribution is in reference to finding some bees in the mummy of Pharaoh, the Egyptian king whose daughter found and adopted Moses. It will be found on page 18.

GLEANINGS, AND WHAT IT PROPOSES TO DO FOR BEGINNERS.

IN this issue we begin, as will be noted, a new department by G. M. Doolittle. The more we have to do with bee-journalism, the more we are convinced that the needs of the beginner should be met more perfectly. Mr. Doolittle, from his long experience, close observation, and methodical habits, is eminently fitted to conduct a department of "Answers to Seasonable Questions," and, of course, these questions will come mainly from beginners. He is so well up in his profession that the advanced bee-keeper may read his answers with nearly as much profit as the beginner. Indeed, experts learn from each other, else a convention of experts would be without avail. The questions to be answered by Mr. Doolittle may be sent direct to him; but the sender must not expect a private answer, neither must he expect to see it answered immediately in GLEANINGS. Mr. D. will select the most important, and answer them when the *proper season* comes for such answer, even though it be six months or a year after. But there are beginners who want an answer to any and every question, no matter whether it be in season or not. Such questions as they often call for light on matters in our A B C of Bee Culture, should be sent to us, and will be answered either by private letter or under the heading of "Beginners' Question-box." This department, though newly named, will be the same in character as one that has appeared occasionally in our columns. What it will be for the future will be seen elsewhere in this issue.

QUIET ROBBING TO STOP ROBBING.

WE notice that the idea of gentle robbing to stop objectionable robbing is credited to us; and we are told that it is now receiving a counterblast by friend Hasty, in the *Review*. We did not originate the idea, because, if the reader will refer to our back volumes of a number o years ago he will see that no less an authority than Dr. Miller probably first suggested it. At any rate, we found the plan to work so well in our apiary that of late we have been giving i considerable prominence. Quite a number also, have indorsed the plan, while perhaps an equal number have said that it was a failure Well, so far as we are concerned, so long as we secure more brood and more queens, and more queens fertilized, and at the same time secure almost entire immunity from *objectionable* robbing, we shall keep right on using the plan. I is our opinion, that those who have failed with it have not observed all the conditions necessary to make it work right. We do not blame some of our friends for thinking the plan wil not work, for at first, apparently, it is a failure because the bees make a perfect uproar to star with; but as soon as they learn that honey can be obtained only a little at a time, they quie down. We remember we first said the Boardman solar wax-extractor would not work—tha we had tried it, and could not understand why it should seem to work so successfully with Mr B. when it should fail with us. We remember also, that Doolittle cell-cups were also a failure; but lately, by observing a little more the conditions laid down, we not only made the cell-cups work successfully, but found the Boardman solar wax-extractor was one of the best money-makers in the apiary. Bee-keepers who say that the special methods or plans of another careful and intelligent bee-keeper will not work should be careful themselves to observe the conditions; because, if Mr. A has found something that will save him a good many dollars in a season, Mr. B can not afford to declare it a failure just from a *partial* trial. The old saying, that "what man has done, man can do," is a proverb that sometimes means many dollars to the one who thoroughly believes it.

THE GIVEN PRESS.

IN the December *Bee-keepers' Review*, Bro. Hutchinson has this to say of this excellent machine:

> It is very pleasant to know that bright, practical men seem to have a way of getting at the truth of things pretty closely without recourse to such elaborate processes as appear in this month's report from the Michigan Experiment Apiary. Messrs. Heddon, Taylor, E. J. Oatman, Dr. Mason, and some others, have declared in favor not only of Given foundation, but of using quite heavy foundation of this make in sections. Their argument was, that the press put the wax in the walls of the foundation, leaving it soft, because it was not subjected to pressure, while the base was left very thin. In these experiments it will be seen that the lightest foundation, 13.75 to the foot, gives a septum 73.3 ten-thousandths of an inch, while Given foundation of 9 37 pounds to the foot shows a septum of only 63 ten-thousandths of an inch, the thinnest septum of any in the test. Not only this, but foundation from the press gave the best results in the weight of honey produced. Years ago, when foundation was discussed at conventions, the Given always came out ahead, and it has always been a puzzle to me why the manufacture of the press was dropped, and why manufacturers did not offer Given foundation for sale. The only reason that ever came to my mind was, that it seemed to me that it would be more work to make foundation on the press. I think now that, if the right man should take up the making of the press, or the making of foundation on the press, success would follow. There is one or two points that I do not understand clearly; and that is, why the press can make foundation with a thinner base, or, at least, make such a base that the bees leave it thinner, than can be done with rollers, and why the side walls are left softer than with a mill. The columns of the *Review* are open for discussion of this foundation question, and contributions on either or any side will be more than welcome.

For the past two or three months we have seriously contemplated the manufacture of these presses; and even before Bro. Hutchinson's editorial came out we had fully decided to do so; and since then we are "decideder" than ever. Of course, we shall keep right on making the roller foundation-mills. In two or three months we hope to have Given presses ready for market.

The special merit of the Given press, however, for the average bee-keeper, lies in the fact that any one can make foundation with these machines; while with the roller-mills, foundation-making is almost a trade in itself. For the large manufacturer, the rolls will be much more rapid, and give a rather finer grade of foundation. We do not think the bees will *work* rolled foundation any better, but it *looks* nicer.

OUR NEW "MAKE-UP."

WELL, how do you like our new make-up? This is one of the changes that we had contemplated last fall, but thought we would say nothing about it until the time came. We think nearly every one of our subscribers will welcome the change. It is true, we lose about a fifth of the room that we had before when the type was not leaded. How are we going to make up for the difference? We are going to give you plainer print to read, more nearly after the style of the *Century*, *Scribner's*, *Cosmopolitan*, and other standard magazines. In the matter of journalism, the reading public care not so much for *quantity* as for *quality*. In other words, a subscriber will go to that journal whose editor will do the most editorial sifting, for him—that is, in a sense do much of the reading for him. Ideas on paper should be as "getatable" as possible. Fine type or close printing, no matter how excellent the subject-matter, nor how well worded, involves a certain amount of effort in extracting the idea. This effort produces a sort of friction, in a short time, that amounts to weariness. It is the editor's and publisher's business to save the reader as much work as possible. We believe that Bro. Hasty, a year or so ago, credited us with printing the greatest number of *words* of any of the bee-journals. That being the case, our readers can afford to have a slightly less amount of reading-matter, *provided* the difference is made up in quality. Our purpose is, and will be, to give both quality and quantity; that we have met the issue is evidenced by our big subscription list.

Last year, with our closely printed pages we rejected about half of the manuscripts that came to us; and not only that, we solicited many articles that we had to pay a considerable sum of money for—articles that we should not have received except by sending personal requests for them. This year the same plan is to be carried out as before, but "more so," as the boy said.

N. B.—All of A. I. R.'s matter will be set close—in type "unleaded," as before, because, he says, his matter was sifted down before as close as he could get it.

IMPORTANCE OF FULL ADDRESSES.

SOME two or three weeks ago we received, almost in the same mail, some two or three letters, in each of which the writer said he had written from two to three times to have his journal stopped, and still he could not prevent its coming. Of course, they each expressed themselves as very indignant, and we on our part were surprised and chagrined, for we think there is nothing more aggravating than to have a paper *keep* coming when we have written two or three times to have it stopped. We know there are a number of second-rate publications that are guilty of this sort of thing; and, to add insult to injury, they will threaten to collect back pay by law. It is true, we run GLEANINGS a little while after the time paid for; but we never resort to *law* to collect, in such cases. We look at it in this way: If we send our journal after the time paid for, without distinct orders, we have no right to compel payment. The habit of people is such, however, that they will defer writing, even when they want the journal; and when a subscriber does not say that he wants the journal discontinued, we assume he wants it, and will pay for it soon. So far we have lost but very little in this way.

But how about those cases mentioned at the outset, wherein the writers had tried to have their journals discontinued? In one instance the man who ordered his journal stopped, returned a copy without another word; and as the wrapper was probably torn off before it reached the mailing-clerk, she could not tell whom it was from, nor what it meant. Again, he ordered the postmaster to write us; but our files show that his letter can not be found, and probably it was never received. He finally wrote himself, but in this case signed only his name, and, as most of our readers know, our list of subscribers is indexed by postoffices and States, and not by names of persons. Then all we could do was to wait for a complaint, and the last one contained the full address and name. In one other case the trouble lay in defective addresses. But, one other instance showed that the man had written the third time, each time with a plain and distinct address. This was clearly our fault, and we at once corrected the mistake, and credited our subscriber a year's subscription in advance, free of charge, and humbly begged his pardon. We mention all this to show that, while we do sometimes make mistakes, we are not *always* to blame even when appearances *seem* to indicate that we are downright dishonest in trying to push our goods where they are not wanted.

Moral.—Please be *careful*, and give your full address. Your mere name is not sufficient. We must have your *postoffice* and *State*.

THE NINTH ANNUAL REPORT OF THE NATIONAL BEE-KEEPERS' UNION is at hand. The amendments to the constitution, proposed in the last report, were voted upon, and carried almost unanimously, says General-Manager Newman; and then he goes on to tell of the victory of the first battle of the year. In the Missouri senate a bill was introduced to the effect that no person should own or keep bees within the confines of any city, town, or village, nearer than 50 feet from the line of any adjacent real-estate owner; and that a penalty of from ten to twenty dollars for each week should be attached after the notice to remove the bees had been served. "Mr. W. S. Dornblaser, ex-Secretary of the Missouri State Bee-keepers' Association, sent a copy of the bill to the manager of the Union, and instantly the Decision of the Supreme Court of Arkansas was brought into play like a Gatling gun, and copies of it were sent to the legislature and to the governor." Hon. R. L. Taylor, President of the Union, backed up the General Manager, and gave it as his opinion that the bill was unconstitutional. The result was, that the bill was promptly killed.

In regard to sugar honey, the General Manager gives notice that he will "prosecute to the full extent of the law any who may dare to offer for sale as honey any of that sugar-syrup swindle."

Mr. J. A. Pierce, of Grand Rapids, was threatened by 25 peach-growers, who stated that his bees were eating their peaches. Again the peach-growers were supplied with the Arkansas decision, that bees are not a nuisance *per se*; and upon finding the legal status of the thing they let the matter drop. Mr. G. B. Woodbury, of California, was also threatened by fruit-growers, and again the Arkansas gun was turned upon them, with the usual results.

There are several other cases on hand in Wisconsin, Iowa, Canada, Nebraska, and Colorado; but the Manager thinks it not wise to make any statement regarding them at present. The balance on hand in the treasury is $721.71. If the Union assumes the aggressive in prosecuting honey-adulterators it will need every cent of this, and more. It has already, as we happen to know, taken several cases under advisement. The fact that the Union is watching them has made the law-breakers a little cautious. The dues for 1894 are $1.00, and should be sent to Thos. G. Newman, 147 Southwestern Ave., Chicago. Any applicant may become a member by paying the same sum—$1.00. We do not hesitate to say that the Union ought to be supported because of the valuable precedents it has been establishing, and the systematic way in which it turns them to good effect whenever the interests of bee-keepers are at stake.

THE following is the law of Ohio concerning standard time. See Our Homes, this issue.

(House Bill No. 216.)

AN ACT

To establish a uniform system of keeping time throughout the State of Ohio.

SEC. 1. Be it enacted by the General Assembly of the State of Ohio, that the standard of time throughout this State shall be that of the ninetieth meridian of longitude west of Greenwich, by which all courts, banks, and public offices, and all legal or official proceedings, shall be hereafter regulated. Whenever, by the laws of this State, or by any law, rule, order, or process of any authority, created by or pursuant to the laws of this State any act is required to be performed at or within any prescribed time, such act shall be performed according to the standard of time of the ninetieth meridian of longitude west from Greenwich, known as central standard time.

SEC. 2. This act shall take effect at 12 o'clock, noon, April 1, 1893.

LEWIS C. LAYLIN,
Speaker of the House of Rep's.
ANDREW L. HARRIS,
President of the Senate.

Passed Mar. 23, 1893.

OURSELVES AND OUR NEIGHBORS

By A. I. Root.

The ox knoweth his owner, and the ass his mas-
r's crib; but Israel doth not know, my people doth
ot consider.—Isa. 1:3.

Very likely I shall be accused again of quot-
g texts that were intended to be used in a piritual sense, and of applying them to prac-
cal every-day business matters, using them in business sense, or, I should like to say, in a *mmon-sense* way. Perhaps some of you may sk how it comes that I, A. I. Root, possess ore common sense than the rest of the world. Vell, it may look that way to some of you, but am going to appeal to your reason. If what I y is not true, will you be good enough to tell me herein both truth and common sense are not on y side? May the great Father above give me ace and wisdom to present kindly and fairly yes, even lovingly—what I have in mind.

The thing that disturbs me is simply this atter of keeping the time—of setting our ocks and watches. I presume there are few aces where Gleanings goes, wherein this atter of local (or sun) time and standard time as not been discussed and compared. On the st of April last, the State of Ohio declared in vor of having one standard time—at least, to e extent of requiring all the public buildings set their clocks by standard time and not by cal time. I do not know how far this law as been complied with. I do know, however, at almost everybody seems to be fighting gainst it. A great and needed reform was ggested by our State; and I for one not only joiced, but really enjoyed having all the ocks in our factory and in our respective omes set to standard time. In our own home, even objected to having *any* timepieces put ack on the old-fashioned time.

Away back in the dark ages, people used to ckon time by the setting of the sun. I do not ow but there are remnants of this old-time shion existing even now, but we shall not ed to stop to discuss it here. When people und out that the sun sets in the winter time ast night, Wednesday, Dec. 20, it set at 4:10 andard time) at 4 o'clock, say, and in the mmer at 7—a difference of 3 hours, as civili-
tion and business progressed they decided it ould not do. Starting at sunrise would be st as bad, and accordingly somebody must ave suggested midday and midnight. They ould call the one noon. Then came the ques-
on, "What is noon?" They soon found that is was not a very easy matter to settle. Of urse, sun-dials were better than nothing at l; but any old almanac—even a patent-medi-
ne almanac—tells us the sun is half way over noon only four times a year. There are a od many people who seem to be ignorant of is, although any watchmaker or jeweler, or y one who has to do with accurate time, can ll you at once. The day before Christmas, e sun is half way over exactly at noon; while ov. 1 it is *16 minutes* out of the way. If you ad your clock set exactly right with the sun the above day, it would be more than a arter of an hour away from noon. Well, by pt. 1 the sun is exactly right—no minutes st and no minutes slow. By going back to ug. 1st, however, we find it six minutes over the other side from what it was on Christ-
as. By the middle of June it is right again. oing back to April 1 we find the sun 14 min-
es slow. Now, add this 14 minutes slow to e 16 minutes fast which we had just before Christmas, and we have just half an hour's variation. What do you think of *sun* time, any way?

All this is owing to the fact that the earth moves much faster in its orbit around the sun from July 1 to Jan. 1; but just while you are reading this the earth will be leaving the sun, and will go slower and slower till July 1, and then it will "slide down hill" again, as the boys might say. The orbit of the earth is not round, but like a hoop slightly flattened; and this, of course, causes the earth to move two miles a second *faster* at Christmas than it does on the 4th of July. Now, all those who talk about sun time, and the "time that God gave," as some have fondly expressed it, fail to take this matter into consideration.* The sun is really no guide at all for *accurate* time-keeping. It would hardly do, in fact, to tell by it a man of regular habits when it is dinnertime. If he lived out on an island, as did Robinson Crusoe, he might have his dinner when the shadow pointed to noon; but if anybody else lived on his island, and they two were working together, they would be liable to lose from 15 minutes to half an hour—that is, if one had a tolerable clock and the other went by sun time. This state of affairs did not make very much trouble while people were mostly farmers. When, however, "in the course of human events," it became necessary to run factories, and have gangs of men congregate together, some absolute method of keeping time was really a necessity, and each factory had its clock. To keep this clock right, some sort of sun-dial, with the aforesaid medicine almanac to tell when the sun was fast or slow, did very well. When people traveled by stage-coach, the difference in time in different towns and cities did not create very much disturbance; but with the advent of railroads—especially those running east and west, as the main lines do—and the greater speed that came in with these new methods of travel, something "had to be did." Unless the railroads had some sort of agreed standard time, they would be liable to prosecution for endangering human life.

Previous to 1883 they had a system of keeping time that came up under the force of circumstances. At the time, nobody seemed to have the matter much under consideration, and it was a sort of make-shift. If I remember correctly, we had New York time, Chicago time, and San Francisco time. Then it became necessary to have the time change from one kind of time to another kind of time at some special point. Travelers, in passing this point, were notified to change their watches so many hours and so many minutes. This was rickety and loose; but it was better than no system at all. In 1883, by general consent there was an agreement to have all changes of exactly one hour.

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*As an evidence of the futility of attempting to fix the hour of noon by the sun, please notice that, during these short wintry days, the sun sets earliest at some point during the first week in December. Now, if the sun were at all regular or accurate in his habits, he ought, in fairness, to *rise* latest at about the same time. Instead of this, however, he keeps rising later and later through the month of December, thus throwing the noon-mark to the east, or making the sun slow; and it is not until about the first week in January that he gets to his limit as a tardy riser, and commences getting up earlier. You can verify this by your clock or almanac, or both. With such a state of affairs, pray tell me where noon *ought* to be; in other words, the old-fashioned noon, or 12 o'clock, according to sun time, is constantly changing; and if noon time is constantly changing, so, of course, are all the other hours in the day, and the old-fashioned sun time really amounts to nothing at all. We might almost as well regulate our time by the moon, as did the Indians when America was discovered by Columbus.

Travelers were to set their watches forward or backward exactly an hour after passing certain points. As one thinks of it, he wonders how the world got along without having some regular system like this years before they did. I believe it was expected that the great world of people — especially intelligent, educated American people—would fall in with this reasonable scheme of having something fixed and definite in regard to the matter of time. Like other improvements, however—in fact, according to the language of our text—Uncle Sam was obliged to acknowledge, "My people doth not consider." A great many did not understand; and those who did, in a heedless, thoughtless way, "kicked," if I may use the American expression, against the innovation. Of course, there were certain points where railroad time agreed with the time already in vogue, or within a very few minutes; and in such places there was no trouble. Here in Medina we happened to be at a point where there would be about 28 minutes' difference between standard time and the time we had been accustomed to; but the truth of the matter is, the most of us had not been accustomed to *any* particular time. The clocks in our homes varied from a few minutes to half an hour—sometimes a whole hour. When somebody out in the country, however, had reason to think that his clock was a whole hour out of the way, he shoved it back to about where some neighbor guessed it *ought* to be. Watchmakers and jewelers did a little in trying to straighten things up; but many of them, in smaller towns, were as stupid as the people in the country. I was in that business for a good many years, and I know something about it. Rival jewelers would have their clocks as much as 10 minutes apart; and I thought sometimes they stuck to it just to spite each other.

Who can tell the time that has been wasted—yes, *valuable* time wasted—by the resulting want of harmony in meeting appointments? Let me give you a few items from experience that meet me right along. Two of our men agreed to get up in the nighttime to make some important changes that could not be made while the machinery was running. One had his clock set by sun time, and the other had standard time; so a valuable man stood out in the cold, waiting for the door to open. I do not know whether he charged me for that half-hour or not; but I presume it was all right if he did do so. The man who drives our big team was going out into the basswood orchard to get some timber. Three men were to go with him. He told them to be on hand at a certain corner, at such an hour in the morning. A part of them had sun time, and the others had standard. The team and expensive men (worth a dollar an hour at least) had to wait for the men who had the other kind of time. A father and mother, with a family of little children, came down to the depot one Saturday morning, just 15 minutes after the train had left. They could have reached home by night, had not the clock been sun time where they stopped over night. I heard them discussing about going to a hotel to stay all day Saturday and all day Sunday. They were poor people, and, besides being needed at home, they could very ill afford the expense of two days at a hotel with their children. They started for the train so as to be 15 minutes ahead; and I do think it would have taught the man or woman who kept sun time a useful lesson to make them pay for all this expense and trouble, because they stubbornly refused to set their clock correctly, according to the best light of reason and common sense at the present time.

There is no need of multiplying these instances. You have all seen it. When I wa having my teeth fixed, the dentist told me t come at half-past one. Well, even as bright man as he is had his clock set by sun time. Hi time, in the middle of these short winter days is worth a dollar an hour or more; but he migh have lost half a dollar by having his time se according to his own notion rather than according to the dictates of business and sense If it had been the other way, I should have los *my* time.

You know how I have taken the part of railroads—that is, I have in many cases; and som of the friends have stopped taking our journa because, they said, I sided in with the "monopolists." I think it was only yesterday, or th day before, that I overheard a grown-up ma say something like this:

"Let the railroads have such time as the choose; but what business have they to interfere with the time *we* keep? All in the worl they do it for is just to be arbitrary, and sho their authority. They are getting the uppe hand of us every day, and bossing in this, that and the other. Now they are undertaking t tell us how we shall set our clocks in our ow homes."

Such speeches as the above bring to my min vividly our text. Why, the ox in his stabl should have more sense, for he knows his owner and knows where his interests lie. The prophet, however, adds, in a kindly way, "But Israel doth not know, my people doth not consider."

Again, we hear the expression over and ove "God's time is good enough for anybody;"* and "Give us the good old-fashioned time of ou fathers." Well, there may be some sense i wanting the good old-fashioned time; but is su time any more God's time than standard time If God is supposed to use sense and reaso the latter would certainly be the time he woul recommend. It is about 25,000 miles around th earth. The sun goes around it in 24 hours—o at least, it seems to. Just 20 miles east of u we find the large city of Akron. The difference in sun time—that is, if there were such thing as accurate sun time—would be about minute and 20 seconds. Now, would anybod be so stupid as to declare that Akron shoul have one time and Medina another, and tha the railroads should change their time to agre with every station? A minute and 20 second would not make very much difference; but i some kinds of business, where the proprieto have learned the value of even minutes, i might make a great deal of trouble. The cit of Oberlin, about 25 miles west of us, had fearful railroad collision that resulted just fro the lack of *one minute* to get out of the way Their regulations were figured down so exac that a difference of one minute in the watche of the railroad officials brought disaster. O course, even railroad companies do not, as general thing, work on such close margins; bu in this case a combination of circumstance made a minute of exceeding importance. Th railroad companies have decided to mak the time one hour earlier after running west-ward a little over 1000 miles. I think no on ıuestions the fairness or the good judgment ısed in fixing it thus. But yet the greater part ɪf the world seems to be determined to go back o old methods, resulting in loss, disappoint- nent, destruction of property, waste of money, tc. If we had the money that might be saved ɪy adopting standard time all over the United States, there would be ample means to clothe nd feed all who are just now suffering in this ountry. There is not a question about it.

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* When I hear people saying that this, that, an the other is good enough the way God gave it to us I feel like saying to such people, "Look here, m friend, why do you wear spectacles? Are not th eyes that God gave you good enough? Why do yo fuss or bother with these things that are only inventions of man?" The truth is, God gave us a little expecting us, by our God-given intellect, reason and common sense, to hunt up and find out thing ever so much better; and the time has gone by whe any reasonable being can object to progress an short cuts because God did not furnish it withou any effort on our part.

In the town of Interlochen, Grand Traverse 'o., Mich., they keep *four* kinds of time—at ·ast they did two years ago this fall when I topped there. I had to wait about two hours ɔr a train, and told them I should like dinner bout noon. The landlady at the hotel asked 'hat kind of time. I then asked what time ıey usually had their dinner. She replied that ıey had to get one dinner for the railroad men nd another for the townspeople, and the two inds of time were just one hour apart. She ıid they had quarreled over it, but neither de would give up; and then some other people, ho moved into their new settlement from ɪmewhere else, insisted on having their time, ıch as they had where they used to live; there- re there were four kinds of time in that town.

I were in a new town where no better har- ony could be brought about than the above, think I would move away and let them suffer e consequences of their folly until they learn- wisdom.

Our schools and churches here in Medina are l run by standard time. In fact, as yet they ,ve not dared to do otherwise. Now, just im- ine having a different kind of time in your ɪmes, and teaching the children, as they grow ʼ, to figure and calculate, and blunder and ımble continually by having school time and me time half an hour apart. Why, the Hu- ıne Society ought to take the matter in hand der the plea that it is cruelty to animals.

Yes, there *are* some arguments on the other le. Perhaps you would be ashamed to men- ɪn them after what I have said, and therefore vill mention them for you. It is a bother to ve dinnertime before noon. Well, here at r place we have dinner at 11:30, so our dinner- ur is just what it always was. But the wo- ·n-folks complain that it is no end of trouble become accustomed to having dinner at 11:30 :tead of 12.*

Yes, it is some trouble to have a new set of :th until one becomes accustomed to them; t for that reason shall I have mine pulled off d thrown away after they cost a big lot of ·ney, simply because I can not be patient d wait a week or a month until I get used them? (I wish to say, however, that, even ɔugh I have not had mine two weeks, I would ; take ever so much more than they cost to back to my old ones.) Then there is another ection—one still more serious in its conse- ·nces. The mothers declare that the chil- n will insist on having the extra half-hour ore going to bed. With the old-fashioned ıe they used to go to bed at half-past 8 or 9. th standard time they keep insisting that it ot 9 o'clock yet, etc.; and it is a good deal of ıble to keep quoting all the while the old or- of things. Yes, it makes me some trouble. ave said a great many times, "Look here, ldren, it is half-past 9, and you know that ıns, by the old-fashioned time, 10 o'clock. ·e you are, all of you, still up. Now just ık what a time we shall have in the morning in getting you up so as to be ready at Bible-reading and prayers." The latter always comes after breakfast. When the children are late they are obliged to get their breakfast afterward; and if mother does not carry it back and put it in the oven, it is likely to be cold.

But, dear me! what are such trifling things as these, compared with having *one kind of time*, and *one* only, the world over? Somebody may say, "Why, if you think a little you can figure out the difference." Well, I have had my teamster stand still with his team while he and I both figured out when he must be on hand to meet an appointment, with his clock set on the old-fashioned plan. It puzzles me, and uses up my brain force, and even then I get it wrong. The dentist and I both tried to figure when I should be at his office according to *his* clock. I did not make it out, even then, but perhaps he did. When I remonstrated with him he said the great city of Cleveland, after trying standard time, had voted to go back to sun time. What shall I do with such an argument right before me? Why, I would say to the great city of Cleveland, "For shame!" I do think they *ought* to be ashamed of themselves—every man, woman, and child.

This sort of spirit, or this stubbornness against taking up with new and improved methods, meets us in other things as well as in having accurate time. Every little while I come across people out in the country who are burning *tallow candles*. May be I put it too strongly, but there are at least a few such right here in Medina Co. They prefer the old-fashioned methods. In farming, there is such a thing, I suppose, as going too heavily into new-fangled methods; but, oh dear me! to think of the other extreme that becomes apparent when we see from statistics what the average farm crop is! You may say, "Why, Mr. Root, why not let everybody do as he pleases in a matter of this kind?" In regard to farm crops, folks can do as they please, and I suppose they will do as they please; but in this matter you are wronging your neighbors—wronging people at large. The poor family that was put to the expense of staying at the hotel over Sunday is an illustration; and no one can have a timepiece—it matters not who he is—without setting more or less people wrong who happen to glance at his clock, and that, perhaps, without saying a word. I have been vexed almost beyond endurance by just this very thing. Being in a hurry I have glanced at a clock, not thinking there were two kinds of time. Then I missed the train, or some other important appointment, because of the half-hour's difference.

Now, then, if I have not been fair in this—if I have held up one side and kept out the other, please tell me so, and set me right. If, on the other hand, all I say is true, and yet you stubbornly refuse to go to your clock this minute and set it where it ought to be, as soon as you can, then I shall have to think of you as I do of some other people who know perfectly well what is right and fair, and yet who stubbornly and deliberately persist in doing that which is wicked and wrong. Even if you have a sundial and an almanac, it is a rather difficult matter to keep your timepieces correct. I do not know how you can keep sun time with any degree of accuracy, even if you set out to do it. I do not know how it is in other places, but in our town the jewelers all keep standard time. One of them told me a few days ago he had pulled off the extra hand he used to have on his regulator, and that in the future he would absolutely refuse to give anybody "sun time," or aid him in any way in his stubbornness. Good for the jeweler!

Even if you decide on sun time, it will trou-

·t would seem as though there should not be very ·h difficulty about changing the hour a little for ıer, when, among a certain class, the dinner-hour not mean any time in particular. It may be 12,), 1, or 1:30, and so on until after dark.

ble you very much to get it exactly. But how is it with standard time? Why, our scientific men can tell you when it is noon to the fractional part of a second.* You will find something on this subject in Gleanings for 1891, Nov. 15, page 899. Well, by the aid of our wonderful system of telegraph lines we have clocks in all our cities and towns so perfectly regulated by electricity that the actual *pulsations* are in perfect harmony. The people of Medina are well aware of the fact that there is a beautiful and expensive timepiece on one of our business streets that is never a fraction of a second out of the way, and yet the greater part of them refuse to avail themselves of this wonderful achievement in science and—common sense. Why, I often say, from the bottom of my heart, "May God be praised that our United States of America has at length inaugurated such a perfect, accurate system of uniform time, that may easily be adopted wherever railroads and telegraphs have pushed their way."

HIGH PRESSURE GARDENING

GARDENING FOR DECEMBER.

In our issue for Nov. 1, 1892, page 813, I spoke of having four rows of carrots 400 feet long. Well, during the past season we had five rows on the same ground; but the wetness drowned out the lower end so much that there were hardly four good rows. The carrots were sown quite thickly, as before, and the ground is some of our heaviest manured market - garden ground. It is a gravelly loam, and quite a good part of it is right through where Champion Brook used to run before I made a deep straight channel, so as to take the water off from this rich bottom ground. Well, you notice that, last year, I was quite elated because I got 30 bushels of carrots from these four rows. Now take a good big breath to get ready for the announcement I am going to make. Last Saturday, Dec. 16, we dug 110 bushels of carrots on this same ground. At 40 cents a bushel this would make about $1440 per acre, even at the low price of 40 cents a bushel. I have noticed for years that carrots on this ground, if sown quite thickly, would still make a good size, even when they were so close that they crowded each other almost out of the ground, and squeezed each other almost out of shape. But for feeding horses and cattle this does not matter so very much. We have sold 25 bushels at 40 cents; but our horses, and, in fact, all kinds of stock, eat them with such avidity that we do not care very much whether we sell all the others or not. This ground seems to be particularly adapted to carrots. They get down through the loose gravel easily; and the rich bottom land, a good deal of which is mud left from the overflows, seems to furnish fertility. Perhaps you may wonder why we waited till the middle of December before we harvested them. Well, they were growing so beautifully that I hadn't the heart to pull them up; and, in fact, they did not do much if any thing until the late rains came; and the first thing I knew, December came down upon us with its frosts and snows. We tried to get at them Thanksgiving day; but nobody wanted to work; and the next time when the weather was really fit was the day I have mentioned. We pulled a lot of turnips the same day. They were not hurt at all, or very few of them were and the rest of them seemed to be really better for the frosting they got. We pulled them tops and all, and piled them in potato-boxes Then a stout team with a low sled went righ past the boxes, setting from 16 to 20 on the sled Of course, this is not very much of a load; bu the team needed exercise, and it saved the men a great deal of heavy lifting.

When they commenced on the carrots I asked them if they were sure there were 25 bushels to fill the order. The man who drove the team told me there would be over 50. Then he said there would be 75. But the more they pulled the more there seemed to be in the ground Pretty soon he announced there were over 100 and you may be sure I had one of my happ surprises when they announced that they had covered up in the toolhouse over 140 bushels tops and all. After the tops were taken off, w had just about 110 bushels of carrots.

Well, there was some other work we did o that warm Saturday. There were two lots o celery outdoors. These were deeply banked up it is true; in fact, the earth had been graduall thrown up around them until only a little bit o the tops was above the ground. The Weathe Bureau notified us that a cold wave would se in Saturday night, and the last of the celer was dug during a pretty severe snowstorm As the tops were all frozen and black, I took sickle and thrust it under the earth so as t slice off the black dead frozen tops. I did no want these carried into the cellar, because the would cause the rest of it to rot. The celer was then dug, and packed in potato-boxes, as have before mentioned. The quality is prett fair; but cutting off all the frozen portion leaves it in rather untidy shape, and it has t be sold at 5 cents per lb., while we get 10 cent for the best. The reason why the celery wa left out so long was the same as with the carrots. It was growing so beautifully, and th weather was so fine, that I could not bear t disturb it. Generally it will do very well t leave carrots until an open spell in Decembe as they do not seem to be hurt a particle; bu with turnips it is rather risky, as I have sometimes had them injured, even as early as th first of December; and in our locality I thin celery should be fixed up for winter befo Thanksgiving.

I am greatly pleased with our plan of pack ing celery just as it is taken up, in the potato-boxes. Set these boxes tight up together, right on the earth bottom of a damp dark cellar, and it will bleach out about as nicely as in any way you can fix it. The slatted potato-boxes give ventilation enough to prevent heating and rotting, and yet not so much as to injure it by wilting—that is, if your cellar is damp and dark.

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*Somebody said last evening, that, as the railroad people were obliged to get their standard time from the sun, after all, what does it amount to, even if the sun *is* very erratic in its (apparent) movements? But, hold on, my good friends, who are inclined just now to worship the sun. Astronomers, and scientific and railroad men, do not get their time from the sun. They use what is called siderial, or star time. A star comes to any given meridian every day, owing to the unchanging revolution of the earth, at *exactly* the same instant. That constitutes a siderial day, or a day having 23 hours 55 minutes and $\frac{909}{1000}$ of a second. This gives an invariable standard of time measure, just as we have a permanent standard yardstick, or standard pound or gallon. See our issue referred to above. Our stenographer, who, by the way, has assisted me quite a little on the astronomical points of this discussion, here suggests that a very considerable portion of the people of the world live north of the 67th parallel of latitude, where the sun at this time of the year does not appear for over 24 hours at a stretch, and where, in June, it does not set for at least 36 hours—"God's time" too; and within the limits of civilization the sun does not appear for weeks. Here the stars are an absolute necessity.

I have been informed that the reason why the laws of the State of Ohio took hold of the matter was, that the question came up in regard to insurance. Sometimes a building takes fire just 15 minutes after the company *claims* the policy has expired. Now, then, were you insured by sun time or standard? and what has the law to say in regard to the matter?

EGYPTIAN (OR WINTER) ONIONS UNDER GLASS.

Friend Root:—I have received valuable in- ormation from articles under "High-pressure Gardening," and believe there are times when perhaps even my experience would be of some benefit to others. As you said in last GLEANINGS, Nov. 15, the bottom onions of the Egyptian (or winter) onion variety, are excellent for putting nto hot-beds. Of this work I now wish to peak, and have just been in the field with our helpers taking those *bottoms* up, to set in our hot-beds later on. To do this we use a subsoil-plow, which is held by experienced hands close o the row, which loosens every onion. We ake hold of the onions and lay them side by ide, the entire length of the row. The next row is laid in the same way, but the tops in one row face east, in the other they face west. The roots in each row are just touching. When we ave thus pulled up four or five rows on either de of our row of onions, then we commence ulling, and lay the onions on a board 12 inches ide, with a strip 1 x 4 nailed on one edge, 12 ft. ong. The roots are placed next to this strip.

I will just say here, these are the same boards e use in spring in conveying our onions from he field to our round house, where they are eaned. We put two of these boards on a wagon (which has had the bed laid off); then a rosspiece is put on top of the 4-inch strips, and n these are placed two more boards full of nions, and these make a wagonload. When hey are brought to the onion-house the boards re lifted, onions and all, over the low wheels wagon), and thus carried and *turned over* all once, thus leaving them straight and even, nd without handling or mutilating the tops, hich is quite necessary to preserve their good ppearance on market. We will turn them on e floor (the first two boards full), then place a mall box, about 10 x 12 inches, at each end of e onions thus dumped, and on these boxes is id a 2 x 12-inch plank, about 2 ft. longer than e onion-boards, and on this plank are laid o more trays of onions, and so on, making e tier as high as four feet or more; and we ually have four or five tiers, so that, in case bad weather, we shall have enough onions hand on the morrow to keep the onion-strip-rs busy; and unless we have them separated described, they will become heated; and not ly that, the onion-tops next to the floor will flattened by reason of such pressure, and dly bruised.

I have taken some time to tell of the use we ake of these boards; but those who are grow- g onions on an extensive scale will find them valuable.

To go back to the field, now, as I have said, use these same boards; fill a board full; o men work with each board, then carry it er to the row of onions and turn them over that, just as we did in the onion-house. We us put 32 rows in one full length of field. hen completed you will see only onion-tops, epting the last boardful, along as the bind- The whole is now covered over with coarse er, but not so as to heat them. The object this is, of course, to have your onions so you get at them when wanted for hot-bed use, January or before, at which time the ground sually frozen so as to render the getting of your onions out of the field otherwise impossible.

Now that we have the onions ready for the hot-beds, our next thought will be the *condition* of the hot-beds, which must not be *hot.* When the soil is too warm, it causes the onions to grow too fast and *slim.* Not having time to gather nourishment from the soil, it simply *lengthens out*, and that is not altogether desirable.

Our lettuce is now ready to be transplanted into the hot-beds; and by the time it is taken from them, I believe the beds will be in better condition for receiving the onions than at any other period. The onion which is put into a hot-bed should be of good size, and grown from large sets, on rich soil, and must have *room* in the field. Remember, the onion does not get *fat*, as we call it, in the hot-bed. You put a small onion in the bed, and it will always be small.

We dig a ditch about four inches deep across the bed, and set onions in it, side and side, as close as convenient, full length, then cover and straighten up by using a lath the same length of row. Then make another ditch as before, and so on until completed. I have experimented by cutting the tops or leaves all off, which makes them look much nicer about a week or two afterward, and have also trimmed the roots all off but about one inch; but when we marketed the onions we could see but little if any difference, and hereafter we shall do no trimming at all. I have marketed onions 27 days after being first put into hot-beds. This year, being so dry, our onions did not start to grow until very late; and the result is *very* small onions to put into hot-beds. We shall only be compelled to put more in a bunch when time to market.

Now, Mr. Root, this may be too long for your use; but you have it any way, and I think it is now your turn to take the stand and give me some information about onions.

Last spring I set out nearly one acre of White Victoria and Prizetaker, according to the "Greiner" system; but I set some of them out late, and we did not have a rain to do any good until very late this fall. I think nearly half of the onions lived anyhow, regardless of the drouth. The most of them made small bottoms; and after the fall rains my onions commenced to grow, and to-day it's a field of *green* onions; and now how shall I manage to get the most good out of them? or can I do any thing with them? I have thought of letting them remain where they are until spring, and see if they would not come on and make green bunch onions; or would they winter-kill though covered with coarse manure? I have also thought of taking them up at once and putting them into hot beds, and sell green bunches in that way. If you know that would be a success, please drop a card to that effect at once, so they can be taken up before the ground freezes. These same varieties which I set out in time to get the benefit of early rains made a large and profitable crop, and I shall continue to grow them that way.

I also want to get hold of some of those "chives" when you find more than you want, as well as potato onions.

I hope your call, "What do *you* know about onions?" will awaken some of the onion-growers to relate their experience, especially in forcing the onion, as it is now time that we should know whether you keep your onions, intended to force, from freezing, or in the frozen state. Do you keep them in the cellar or in pits? Do you put them into the hot-beds while frozen, or how do you manage them?

Kankakee, Ill. C. W. POTTENGER.

[Friend P., we are greatly obliged to you indeed. It certainly does make a vast difference in your bunch onions in regard to the appearance of the tops, and your boards are just the thing to keep every thing orderly and systematic. If a lot of onions are dumped into a basket, and then pulled out one at a time, the tops would be draggled and untidy; and, besides, one can work ever so much faster where things are arranged in a methodical way, as you mention. We have had experience with the White Victoria and Prizetaker, in just the way you mention. I have tried transplanting them to the greenhouse; but some seasons we get just as nice onions, or perhaps nicer, by leaving them outdoors. Of course, we can not have them so early as where they are put into a greenhouse or cold hot-bed, such as you describe. And, again, where they are left outside, too much freezing and thawing sometimes injures them greatly. Our onions for forcing, we usually take up before they have been frozen and thawed very much, and put them into the cellar. I have never tried pits, but very likely they would do better. We sometimes put them into hot-beds while frozen, but they seldom do as well.

Surely You have heard that

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You should also know that they are ***the BEST SEEDS that grow.*** You can learn all about the choicest Vegetables and most beautiful Flowers in

Burpee's Farm Annual for 1894.

The Leading American Seed Catalogue.

A handsome book of 172 pages, with hundreds of illustrations from photographs, and beautiful colored plates painted from nature. Many new features for 1894. Noteworthy Novelties not to be had elsewhere. Original, interesting and instructive, it should be read by everyone who has a garden. Mailed free to all who plant seeds; to others, on receipt of ten cents, which is less than actual cost per copy.

"SELECTION IN SEED GROWING,"

A Unique New Book for 1894.

Specially devoted to the essays read at the ***World's Horticultural Congress,*** Chicago. It gives much original and valuable information by such well-known Horticulturists as ***M. De Vilmorin, Bjergaard, Allen, Morse, Burpee, Prof. Bailey*** and ***Prof. Trelease.*** It also tells how seeds are grown and tested at ***Fordhook Farm,*** with illustrations from photographs. ***A book of 112 pages for Ten Cents,*** which amount can be deducted from the first one dollar sent us for seeds this season. Enclose a dime (or five 2-cent stamps) and state also whether you want ***Burpee's Farm Annual, Free.*** Please mention this paper.

W. Atlee Burpee & Co., Seed Growers,

PHILADELPHIA, PENNA.

Sections!

We have just completed several new and expensive automatic machines that will turn out sections that *in point of quality can not be excelled.* They are sanded and polished on both sides, and are of an absolutely uniform thickness from end to end. Samples and prices in quantities on application. Speak quick if you want to lay in a stock of these fine sections, as our stock of lumber is low.

A. I. Root, Medina, Ohio.

Sections

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

FULL LINE OF

BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 1tfd

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

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Stahl's Double Acting Excelsior Spraying Outfits prevent Leaf Blight & Wormy Fruit. Insures a heavy yield of all Fruit and Vegetable crops. Thousands in use. Send 6 cts. for catalogue and full treatise on spraying. *Circulars free.*

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Until you have written us for prices on the *"Boss" One-Piece Section.*

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J. FORNCROOK & CO.,
Watertown, Wis., Jan. 1, 1894.

Bingham Perfect Smokers.
Cheapest and Best on Earth.
Patented 1878, 1882 and 1892

Send card for Bingham's new price list.

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Abronia, = = Mich.

FOR SALE —500 Ferrets, a well-trained bird dog, Scotch Collie, and Coon dog puppies. Price list free. 4tfdb

N. A. KNAPP,
ROCHESTER, LORAIN CO., O.

TAKE NOTICE!

EFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Beehives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
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An Apiary in California.

I wish to get one, but prefer to take it on shares, or rent, the first year. If suitable, I may buy it.

. C. Judson, East Sidney, Del. Co., N. Y.

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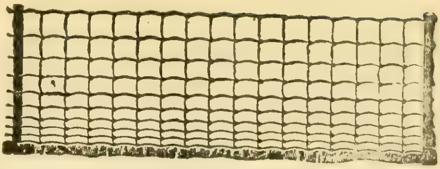
o you know that, freight considered, we can furnish you with supplies at a less cost than any house n this country? Freight rates from New York to acksonville, Fla., only 35 cts. per 100 lbs. Our circular free upon application.

I. J. STRINGHAM, 105 Park Place,
23-22 tfdb ***New York City.***



After Tennyson.

"Break! Break! Break!
And murder my stock," said he.
"Oh! 'twould bankrupt a saint, to utter
The thoughts that arise in me."

"Right here, if I live till next spring,
Page Woven-wire Fence you will see;
For the money I've lost on barb wire
Will never come back to me."

PAGE WOVEN-WIRE FENCE CO., Adrian, Mich.

☞In responding to this advertisement mention GLEANINGS.

BEE SUPPLIES RETAIL AND WHOLESALE

Every thing used in the *Apiary*. Greatest variety and *largest* stock in the West. New catalog, 70 illustrated pages, free.

Discounts to Dealers.

E. KRETCHMER, Red Oak, Ia.

☞In responding to this advertisement mention GLEANINGS.

World's Fair Medal

Awarded my *Foundation.* Send for *free samples.* Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free* Illustrated Price List of every thing needed in the apiary.
Bell Branch, Mich. **M. H. Hunt.**

HATCH CHICKENS BY STEAM WITH THE IMPROVED EXCELSIOR INCUBATOR.

Lowest priced
First class
Hatcher made.

Thousands in Successful Operation. *SIMPLE, PERFECT, and SELF-REGULATING.* **Guaranteed** to hatch a **larger percentage** of fertile eggs, at **less cost,** than any other Incubator. Send 6c. for Illus. Catalog. Circulars Free.

GEO. H. STAHL, Pat. & Sole Mfr., Quincy, Ill.

Please mention GLEANINGS. 21-8db

To Get Acquainted,

We will send the **Bee-keepers' Enterprise** from now until Jan., '95 (16 months), for 50 c.; or 3 months for 15 cts. You will be pleased with your investment, in either case. 18-17tfdb

Burton L. Sage,
New Haven, = = Conn.

YOU CAN'T DO ANY BETTER. Send for our 1894 circular of *BEE-KEEPERS' SUPPLIES, BEES, QUEENS, ETC.*
Jno. Nebel & Son, High Hill, Mo.

☞In responding to this advertisement mention GLEANINGS.

Jennie Atchley's

is the place to arrange for your queens for 1894. She will have them ready.

Beeville, Texas.

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CONVENTION NOTICES.

The third annual meeting of the California State Bee-keepers' Association will be held at the Chamber of Commerce, in Los Angeles, Jan. 23, 24, 1894. J. H. MARTIN, Sec

The next annual meeting of the Wisconsin State Bee-keepers' Association will take place Feb. 7, 8, 1894. J. W. VANCE, Cor. Sec.
Madison, Wis.

The 19th annual meeting of the Vermont Bee-keepers' Asociation will be held in Burlington, Vt., Jan. 24, 25, 1894. Particulars soon.
H. W. SCOTT, Sec., Barre, Vt.

SPECIAL NOTICES FROM BUSINESS MANAGER

CARLOAD ORDERS.

Our trade for the coming season is opening up nicely. As we go to press we are loading a car for Inyo Co., Cal., and have another order for a carload for Las Cruces, N. M., and one from Jennie Atchley, Beeville, Bee Co., Texas. In addition to the large trade in bees and queens done by the Atchleys, they are going into the bee-supply trade with a carload of assorted goods most needed in Texas, from the Home of the Honey-bees.

EXTRA POLISHED SECTIONS.

We are having lots of calls for samples and prices on our new make of sections. Some of these inquiries seem to imply that the prices may be higher than those quoted in our catalogue. On the contrary, we are selling all old stock, made in the old way, at lower prices, and all the sections we are now making and have been making for some little time are made by the new process, and sold at catalogue prices. Special prices to dealers and in large lots.

MAPLE SYRUP.

It is two months yet before we shall have new maple sugar and syrup to offer. We wish to remind you, however, that we have some choice syrup, made last spring, which has kept fresh and good, and which we offer at $1.00 per gal., in lots of 5 gals. or more, put up in 1-gallon cans. We have also a little second grade that we will sell for 80 cts. If any of our readers need sugar-makers' supplies for this year's operations we call your attention in this connection to our advertisement in another column.

CALIFORNIA WHITE-SAGE HONEY.

Soon after this number of GLEANINGS reaches our readers we expect a carload of Mercer's white-sage extracted honey. Like most of the California sage honey the past season, it is of exceedingly fine quality, being white and thick. Sage honey is very slow to candy or granulate, and for this reason it is especially suitable for retailers who put up honey in small glass packages to retail. We sold a whole carload in August to two such dealers. The flavor is very fine. If any, not familiar with sage honey, would like to sample it, we shall be pleased to send you one of our sample mailing-blocks, filled, for 8c postpaid, which simply pays for the package and postage. We offer this honey in 60-lb. cans, two in a case, for 8c; lots of four cases or more, 7½c per lb., free on board here when car arrives.

We offer fancy white comb honey, 1-lb. sections, 100-lb. lots or over, at 15c per lb.; No. 2, 13c. Choice extracted clover and basswood, 60-lb. cans, two in a case, 8½; two cases or more, 8c.

CLOVER SEED.

We are getting a good many inquiries for prices on different kinds of clover seed. For the present the prices quoted on page 33 of our catalogue are as near right as we could make them if fixed to-day. These prices are as follows:

Name. Price—	1-lb.	Pk.	½ Bu.	1 Bu.	2 Bu.
Alsike clover seed	22	$2 60	$5 10	$10 00	$19 80
White clover seed	30	3 50	6 75	13 00	25 60
Alfalfa clover seed	16	2 00	3 90	7 50	14 50
Sweet clover or Bokhara	18	2 00	3 80	7 2	14 00
Scarlet " or German	18	2 00	3 80	7 20	14 00
Peavine " or Mam'th.	22	2 60	5 10	10 00	19 80
Japanese buckwheat .	5	40	70	1 20	2 20

We can not tell how long we can hold these prices, as the wholesale market has been tending upward for the past month or two; and if they continue to go up we shall be compelled, within a few weeks, to advance our retail prices, especially on mammoth (or peavine) and on alsike. Sweet (or Bokhara) clover is growing in favor more and more. We had a short article recently from H. R. Boardman, who has had many acres within range of his bees for several years, and who considers it a decided success for hay and pasture, as well as for the bees. We shall have a longer article from his pen in our next, giving further particulars.

OUR AMERICAN WONDER PEAS OF 1893.

Some of the friends may recollect one or more reports expressing surprise that our American Wonders last summer grew so much larger than usual; but as the quality was excellent, and they were very productive, but few complained. From a report made by Burpee in his little book, "Selection in Seed-growing," we are inclined to think that our peas were not American Wonders at all. Burpee pronounces them Premium Gems. As the crop of American Wonders was very short, the prices were away up. You may remember we purchased ten bushels of one of our bee-keeping friends in the northern part of Michigan, where bugs have not yet been invented—that is, the bugs that infest peas. I believe this friend supposed he had the genuine American Wonders, but we soon found they grew a great deal larger than we had known them to before. As we sold them for about half what American Wonders were worth, most of our customers were satisfied. Well, just now American Wonders are worth from $6.00 to $7.00 a bushel at wholesale. We can furnish the same peas we sold last year, however, at the same price. But if you want genuine American Wonders, we can not do any better at present than 8 cts. per half-pint, or $2.00 per peck. One reason why there is such a demand for it is, that it is the most dwarfed pea known. In fact, it can be readily grown under glass. Another thing, it is a wrinkled sugar pea, equal to almost any in quality, and exceedingly early, being but a few days later than the Alaska. The Premium Gem is a little later, grows considerably larger, but is rather more productive, and nearly if not quite equal in quality. I am sorry for the blunder that was made last year. Burpee tells us, however, that a great number of seedsmen made the same or a similar blunder, by paying for American Wonders and getting Premium Gems.

BBB'S! If you keep ***BEES***, subscribe for the **Progressive Bee-keeper**, a journal devoted to Bees, Honey, and kindred industries. ***50 cts. per year.*** Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address

LEAHY MFG. CO., HIGGINSVILLE, MO.

☞In responding to this advertisement mention GLEANINGS.

For Sale, 125 Bushels Freeman Potatoes.

Grown from Wm. Henry Maule's seed, at the following prices: two-bushel sack, $4.25; one bu., $2.25; ½ bu., $1.25; 1 peck, 75c; ½ peck, 40c. Would exchange Freemans for a New Model garden seed-drill.

H. O. McELHANY,
Cedar Rapids, Linn Co., Iowa.

☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—We are not having as much trade in honey as has been customary during this month. Dealers are not putting in a stock for display, as has been their habit, for the Christmas trade. They buy about what they can sell in the course of a week or two. Hence the volume of business is restricted, or at least seems to be. We get 15c for fancy white comb, and 10 to 12c for the dark grades. Extracted ranges at 5, 6, and 7, according to the flavor, quality, and color. Beeswax, 20@22c; demand not active. R. A BURNETT & CO.,
Jan. 8. 161 So. Water St., Chicago, Ill.

CHICAGO.—*Honey.*—The Chicago market has plenty of honey, and 14c seems to be the outside price obtainable. Any thing that will not grade strictly No. 1 must be sold at 12@13. Large quantities have been sold, but the supply is at present in excess of the demand. Extracted finds ready sale at 6@6½ for Northern honey; Southern, in barrels, 5c. Beeswax, 22@24. S. T. FISH & CO.,
Jan. 8. 189 South Water St., Chicago, Ill.

BUFFALO.—*Honey.*—The honey market is very quiet. Stock on hand is very liberal, and demand very light. Fancy white, 13@14; choice, 11@12½; buckwheat, 10@11; common, according to condition, etc. Beeswax, 25@30. Extracted honey very slow sale in our market, except in tumblers, which are selling mostly at $1.25@$1.50 per dozen.
BATTERSON & CO.,
Jan. 8. Buffalo, N. Y.

KANSAS CITY.—*Honey.*—Demand only fair; good supply. One-lb. amber, 13; 1-lb. white, 15; dark, 11. Extracted, white, 7; amber, 6; dark, 5. Beeswax, 22@25. HAMBLIN & BEARSS,
Jan. 8. Kansas City, Mo.

CINCINNATI.—*Honey.*—While the small trade is fair for extracted and comb honey, trade in general is dull. We quote extracted honey at 5@8; comb, 12@15 for best white. There is a slow demand for beeswax at 20@23 for good to choice yellow.
Jan. 8. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

KANSAS CITY.—*Honey.*—We have not experienced as slow a trade in honey for several years as we have up to present time this year. We quote No. 1 white comb at 14@15; No. 2 white, 12@13; No. 1 amber, 12@13; No. 2, 10@11. Extracted, 5@7. Beeswax, 20@22. CLEMONS, MASON & CO.,
Jan. 8. Kansas City, Mo.

BOSTON.—*Honey.*—Honey is selling fairly well. Fancy 1-lb. comb selling at 14@15 Extracted, 5@7.
Jan. 8. BLAKE & RIPLEY,
Boston, Mass.

DETROIT.—*Honey.*—Sales are a trifle slower at present, but stocks are light. Prices continue the same; viz., 13@15 for best white comb. Extracted, 7@8. Beeswax, 23@24. M. H. HUNT,
Jan. 8. Bell Branch, Mich.

CLEVELAND.—*Honey.*—Owing to large receipts of honey in this market, prices are declining. No. 1 white is selling at 14c. WILLIAMS BROS.,
Jan. 8. 80 & 82 Broadway, Cleveland, O.

ST. LOUIS.—*Honey.*—The market has undergone very little change since the holidays. Hand-to-mouth selling is the ruling one, yet we quote comb 10@14; extracted, 4¼@4½. Prime beeswax, 23½@24.
D. G. TUTT GROCER CO.,
Jan. 8. St. Louis, Mo.

SAN FRANCISCO.—*Honey.*—Honey is quiet, and stocks are large enough for all requirements. We quote white extracted honey at 5½; light amber, 5; comb, 1-lb. frame, 10@11, according to quality. Beeswax not plentiful, and selling quickly at 24c.
SCHACHT, LEMCKE & STEINER,
Dec. 26. San Francisco, Cal.

ALBANY.—*Honey.*—Comb honey is selling very slowly, but we look for a better demand in a week or two, as the market is usually dull for a time after the holidays. There is an increasing demand for extracted, but no change in prices. White clover, 1-lb. combs, 12@13; mixed, 10@11; buckwheat, 10@11. Extracted, 5@7. CHAS. MCCULLOCH & CO.,
Dec. 19. 393, 395, 397 Broadway, Albany, N. Y.

FOR SALE.—2000 lbs. of fine comb honey, in 1-lb. sections, 24-lb. cases, and 2000 lbs. of clover and basswood honey, in 60-lb. square jacket cans. Sample of extracted honey by mail on application.
EZRA BAER, Dixon, Illinois.

We are sending out linn and white-clover extracted honey in packages of 50 lbs. net, for $3.50 each, f. o. b. cars here. Address
J. B. MURRAY, Ada, Ohio.

I have 7000 lbs. fine extracted honey (white clover) in 12-lb. tin cans, at 8c, delivered on cars here; or, 7½ in 60-lb. tin cans (2 in a crate). WM. BARTH,
Petersburg, Mahoning Co., Ohio.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

CHAS. ISRAEL & BROS., 110 Hudson St., N. Y.
WHOLESALE DEALERS & COMMISSION MERCHANTS. *Honey and Beeswax.*
Established 1875.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange 5-room frame house in prohibition town, *fine climate*, for small fruit and vegetable farm. A. F. AMES, Harriman, Tenn.

WANTED.—To exchange Gregg raspberry tips and Snyder blackberry sets for S. C. W. and B. Leghorn pullets. H. H. AULTFATHER, Minerva, O.

TO exchange.—Bicycles, 56 inch Champion, 52-in. Eagle. Will exchange either for 120 lbs. of good extracted honey. Send sample. Also several good safeties to exchange. J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange a $30 gold watch for BEES, comb foundation, wax, white extracted honey, or section boxes. J. B. MASON, Mechanic Falls, Me.

WANTED.—To exchange for good property, one Lovell Diamond safety bicycle, cost $105.00; nearly new. Has not been run 100 miles.
EZRA G. SMITH, Manchester, N. Y.

WANTED.—A situation to work in apiary the coming season, by a young man of 20; have had some experience. Write at once. Reference given. Address R. T. STINNETT, Bell's, Bedford Co., Va.

WANTED.—To exchange a large and fine assortment of Indian or Mound-builders' relics, valued at $60.00; also Gleanings in Bee Culture for 13 years, for honey, maple sugar or syrup, or offers. Write. A. T. COOK, Seedsman,
Hyde Park, Dutchess Co., N. Y.

WANTED. To exchange Given foundation or books, for extracted honey or strawberry or raspberry plants. H. W. FUNK, Normal, Ill.

WANTED.—To exchange one 6-inch Vandervort foundation-mill for making thin foundation, in fair order, for strawberry or raspberry plants, or pear-trees.
J. I. PARENT, Birchton, Saratoga Co., N. Y.

WANTED.—To exchange 1000 60-lb. screw-cap cans, mostly good as new, for choice extracted honey. Be quick, and write to-day.
J. A. BUCHANAN & SONS, Holliday's Cove, W. Va.

THE REVIEW FOR 1894.

As the occasion demands, the ***Special Topic*** feature, that of bringing together in one issue th
latest views of the best men upon some one topic, will be continued. In the ***Extracted Depart***
ment will be given the most valuable articles to be found in the other journals. ***Hasty*** will continu
to give, each month, about three pages of his inimitable "Condensed View of Current Bee Writings."
R. L. Taylor will write each month under the head of "***Work at Michigan's Experimen***
Apiary." Next summer, in company with his camera, the editor expects to visit a large number o
bee-keepers, making extended trips through Canada, the Eastern, Middle, and Western States; and th
Review will contain ***Illustrations*** and descriptions of the bee-keepers visited, their homes, fam
ilies, apiaries, implements, methods, etc. The principal ***Correspondents*** are successful, practica
men, most of whom have numbered their colonies by the hundred, and sent honey to market by the tor
and who can write, from experience, articles containing information of real benefit to honey-producers
In short, the ***Review*** will strive most earnestly to stand in the ***Front Rank,*** to publish advance
ideas, to be interesting, enterprising, wide awake, up with the times, and of such a character that n
practical bee-keeper can afford to do without it. Price $1.00 a year. The ***Review*** and "***Advance***
Bee Culture" (a 50-cent book) for $1.25. New subscribers will receive balance of this year fre
Three late but different issues of the ***Review*** for 10 cents.

W. Z. HUTCHINSON, Flint, Mich.

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We have some of G. M. Doolittle's "Scientific Queen-Rearing" books (170 pages) in paper covers,
copy of which we will mail **FREE** to the new subscriber who sends us $1.00 for the **Weekly "AMERI**
CAN BEE JOURNAL" for one year. This same book in cloth binding sells for $1.00, but we give to
New Subscriber one of the paper-bound edition for **nothing.** Order quick, if you want one. They wi
all soon be gone. A sample copy of the "Bee Journal" is sent free on application to the publishers.

Address, **GEO. W. YORK & CO., 56 Fifth Ave., CHICAGO, ILL.**

☞ *To New Subscribers—6 months with Doolittle's book, for 75c; or the Bee Journal alone for 3 months for 2*

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THE PORTER BEE ESCAPE received the **ONLY** award given an escape. Practical bee-keepers everywhere use and recommend it as a great labor-saving implement, and as the best. Circular and testimonials free. Prices:—Each, postpaid, with directions, 20 cts.; per doz., $2.25. *and your money back, if not satisfied.* Order from your dealer, or if more convenient from the manufacturers, **R. & E. C. PORTER, LEWISTOWN, ILL.**

13 Carloads of Supplies,

This is the amount we have distributed in a single season,
Foundation, Dov. Hives, Sections, Extractors, etc. Therefore,
you have *little money* and want that little to go as far as possib
remember that we are headquarters in the west for all goods
our line; by doing so great a volume of business we sell goo
cheap. If you have *the money,* also remember you can make it earn a big interest by availing yourself
our discounts for early orders. In either case you should write us and tell what you will likely need.
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The new polished sections and all other late improved goods kept in stock.
Send for our large illustrated catalogue, free for everybody, everywhere, especially

FOR THE WES

Joseph Nysewander, Des Moines, Ia.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,
12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

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BEES

QUEENS

Smokers, Sections,
Comb Foundation,
And all Apiairan Supplies cheap. Send for FREE atalogue.
E. T. FLANAGAN, Belleville, Ill.

FOOT-POWER MACHINERY.

COMPLETE OUTFITS.

Wood or metal workers without steam power can successfully compete with the large shops by using our NEW LABOR-SAVING MACHINERY, latest and most approved for practical shop use; also for Industrial Schools, Home Training, etc. CATALOGUE FREE.

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N. Y.

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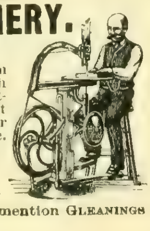

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Supplies, Standard goods; popular price
Catalogue free.

"Busy Bees," a book telling how to ma
age them, 10c in stamps; o
free to those sending names of five bee-keepers.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR MEDINA OHIO

Vol. XXII. JAN. 15, 1894. No. 2.

STRAY STRAWS

FROM DR. C. C. MILLER.

IMMENSE CROPS but poor sale is the cry among bee-keepers in France.

ANNUAL INSURANCE for bees and bee-fixtures in Germany costs 3 mills on the dollar.

THAT MAN makes the best success in the long run in his vocation who has an avocation as well.

"QUIET ROBBING to stop robbing" is a heading on page 26. That's hardly the thing. Better put "prevent" in place of "stop."

YORK took a pretty big contract when he agreed to have a bee-keeper's picture every week of 1893, but he got there all right.

GLEANINGS looks quite gay with its new fixups. Funny that lead, which usually makes things heavier, makes a printed page lighter.

GRAVENHORST, editor *Illustrierte Bienenzeitung*, thinks we might learn something from German bee-keepers, and *vice versa*. *Ganz recht.*

LATHYRUS SILVESTRIS WAGNERI is a new honey-plant that's getting a boom across the water. I think it's some kind of a pea used for forage.

SUGAR FOR FEEDING, free from ultramarine, sulphur, and sulphuric acid, is advertised in foreign bee-journals. May be it would be a good thing here.

A SALVE much esteemed for ulcers and external sores is made by mixing equal parts of honey and flour with a very little water so as to make a stiff paste.

THAT'S A MEAN advantage Rambler takes of me on p. 20, in claiming that washing-recipe for the benefit of bachelors. Bet you he gets kerosene in his flapjacks.

HE LIKED the comb. Papa (*to little boy who has been at a party*): Well, my little man, what did you have that was nice?

Little Boy. Oh! we had honey, and it had chewing-gum in it.—*Harper's Young People.*

AUSTRIA has 1,550,000 colonies of bees; Germany, 1,450,000; France, 950,000; The Netherlands, 240,000; Belgium, 200,000; Russia, 110,000; Denmark, 90,000; Greece, 30,000.

THE OLD RELIABLE *A. B. J.* has so much foul brood in its columns nowadays that I have to wash my hands after reading it, for fear of getting the disease among my bees.

FRIEND ROOT, tell your "sun time" friends that you can get telegraph time every day, rain or shine, but they're in a bad fix if the clock stops and the sun doesn't shine for two weeks.

BRACE AND BURR COMBS, after several years' trial, have not appeared in a hive with top-bars 1⅛ x ⅞, spaced 1⅜, with ¼ space over top-bars, according to a report of O. G. Rislow, in *A. B. J.*

THOSE MUMMIES were quite a find, as told by Karl R. Mathey, p. 18; but isn't friend Mathey himself more of a find? I tell you, if we find out all those Germans know about bees we'll know a heap.

PILE REMEDY. One cupful honey, two tablespoonfuls sulphur and two of black pepper, mixed, and taken a tablespoonful at a dose, three times daily in bad cases.—*Rural New-Yorker.*

THAT LAST STRAW on page 7, that says, "1 out of 22 would keep the frames the same, summer and winter," should read "19 out of 22." Get some new harvest hands that can set up straw right.

MY FIRST CELLARING was with box hives. I turned them upside down, according to Quinby's advice. That made upward ventilation with a vengeance, and all closed below. My present practice is just the opposite. Either way is good if other things are right.

AN OLD SIGN that a colony is not queenless in spring is, to find the remains of wax-worms thrown on the floor of the hive. There may be a good deal in it, for a queenless colony will not clean out such things with much vigor.

MR. EDITOR, haven't you got things a little mixed on page 9? Herr Lehzen, and not Guenther, is the able editor of the *Centralblatt*, and the Guenther referred to is, I think, the same Guenther who, more than a third of a century ago, was assistant to the Baron of Berlepsch, the champion of the Dzierzon theory.*

Skunk-killing. "I take a small piece of comb containing drone brood, in which I insert a grain of strychnine. Place it in front of the hive, and you have got his skunkship sure. If you have no drone brood you can use worker brood."—*Gallup*, in *A. B. J.*

Doolittle will surely be on time with his "Seasonable Questions," according to the picture at the top of them, with the sun on one side and a clock on the other, then an hourglass on top, with a rooster back of it flapping its wings to wake him up in the morning.

Dextrine is not found in floral honey, but *is* found in honey gathered from the leaves of certain trees and from pines, and generally called honey-dew. According to an article in *Revue*, this honey-dew, on account of the dextrine, may possibly be more healthful than floral honey.

A steam wax-eatractor in Germany (the Winkler) claims to get 18 per cent of pure wax out of slumgum left by solar extractors, and 56 per cent out of old combs. The steam is formed in the extractor, which contains a screw press. When the material is heated, the press does its work without the chance of cooling.

Dzierzon says that, in an experience of more than 50 years, he has found no difference in the value of queens whether raised in pre-constructed or post-constructed cells, providing a larva not more than three days old is used. But the quality of the harvest affects the value of the queen, a queen raised during a yield of honey-dew being small and weakly.

GENERAL CORRESPONDENCE

DO BEES FERTILIZE FRUIT-BLOSSOMS?

A BRIEF SYMPOSIUM ON BOTH SIDES OF THE QUESTION.

[A short time ago there appeared in the *Rural New-Yorker* an excellent article from Dr. C. C. Miller, on bees and fruit, which was followed in a later issue by another article taking strong ground against what the doctor had said. We wrote to friend M., asking him if he were going to let the matter drop there. In reply we received the following note, asking information through Gleanings. Ed.]

The *Rural New-Yorker*, reliable paper that it is on all other subjects, had an item sneering at the idea that fruit-trees should not be sprayed when in bloom, suggesting that the bee-keeper should keep his bees at home. A reply was made, saying that, if the bee-keeper should keep his bees away, the fruit-grower wouldn't be troubled with spraying, for there wouldn't be enough fruit set to make it worth while to spray. Then L. E. R., of L., Nebraska, made a reply in which he says, "I lived several years in Wyoming; was engaged in the growing of vegetables, fruits, and flowers, for commercial purposes, and was in the seed business. We had no bees in that country until two years before I left there. We grew apples, crabs, raspberries, and strawberries, the latter in great quantities, of immense size and most excellent quality. Then our wild fruits—plums, cherries, and service-berries, bore year after year, the trees being literally loaded down with fruit. I left that favored clime, and came to what is termed the fruit-belt of Nebraska; but I want to tell you that we had more and better fruit in a day in Wyoming, where we had no bees to fertilize the blossoms, than I have seen here in two years, with an apiary at every second house."

I want to ask, through Gleanings, whether the experience and observation of others corroborate the foregoing statement. Were there no bees in Wyoming till four years ago? Did others have such crops of fruit as are mentioned, with no bees visiting the blossoms? We ought to seek the truth, whatever it may be, even if it upsets what has previously been supposed to be the truth. From my own observation, I have always supposed that bees aided the fertilization of pretty much all kinds of fruit; but I do not know that I ever saw them work to any extent on strawberries. Are they needed for strawberries? If any of our friends of Wyoming, or of the fruit-belt of Nebraska, can give us any light, I shall be much obliged to have them write to me or to Gleanings.

Marengo, Ill. C. C. Miller.

[The article in the *Rural*, together with a recent one by G. M. Doolittle, on page 915, Gleanings for Dec. 15, seems to have stirred up some little discussion among the brethren. Among others just received is the following, which we publish, not so much because it supports the side of the bee-keeper impartially, but because of the painstaking care the writer has used in obtaining the facts.]

BUMBLE-BEES AND CLOVER.

It is an idea often stated, that clover will not yield seed without the aid of bumble-bees, and that clover did not yield seed in Australia until bumble-bees were imported. I did not believe this, as plants were created first, and for the higher order of animal life, but so as to continue existence without animal aid. Therefore honey was primarily for the bee, and incidentally the bee helps the plant in gathering the honey. To find the facts, I made some observations and experiments.

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* Perhaps so. At all events, we stand corrected.—Ed.

In 1891 there were 1½ acres of medium red clover that came within 30 feet of my door, and, being confined to the house by sickness, I watched this field. There was the usual amount of rain until April 20; then there was no rain until June 1, so the clover-florets were shorter than usual, and the honey-bees worked on them as much as white clover. Still there were only few seeds. This clover was not a small growth, as it made two tons of dry hay per acre, first crop. When the second crop bloomed, there were the most bumble-bees I ever saw, as the best estimate I could make was that there was one to each ten feet square, making 4356 working at the same time on one acre. When the seed ripened, there was a large crop. This year, being still unable to walk, I rolled out into the yard in my wheel-chair, and made this experiment. July 21 I covered some clover-blossoms with netting. Part of the florets being open, I tied a small thread around the open ones. At the same time I gathered five heads of clover that were ripe, and 447 capsules gave 131 seeds. The bumble-bees had worked on these blossoms, there being few flowers when they bloomed. Aug. 14 I gathered the covered blossoms, also some on some plants not covered. Where the numbers are the same, they are part of the same head of clover.

No. 1	48	florets	open when covered	gave	30	seeds,	or 62.5 %
No. 1	67	"	not open " "	"	35	"	" 52.238 %
No. 2	113	"	not covered	"	68	"	" 60.177 %
No. 3	132	"	covered	"	100	"	" 75.757 %
No. 4	145	"	not covered	"	123	"	" 84 827 %
No. 5	63	"	open when covered	"	43	"	" 68.254 %
No. 5	84	"	not open when covered	"	50	"	" 71.428 %
No. 6	117	"	not covered	"	100	"	" 85.47 %
No. 7	41	"	open when covered	"	31	"	" 75.609 %
No. 7	85	"	not open when covered	"	36	"	" 42 352 %
No. 8	140	"	covered	"	33	"	" 23.571 %
No. 9	76	"	not covered	"	24	"	" 31.578 %

Nos. 8 and 9 were on a plant about 50 feet rom other clover-plants. Three heads, where 52 florets were open when covered, gave 104 seeds, or 68.421 %; 3 heads, where 236 florets were not open when covered, gave 111 seeds, or 7.033 %. Loss by covering, 21.388 %.

The total florets not covered, 527, gave 385 seeds, or 73.055 %. The total florets covered, 68, gave 211 seeds, or 57.337 %. Loss by covering, 15.718 %.

Alsike and peavine red clover yield seed from he first blossoms; therefore, it is the nature of he plant, and not lack of bees, that causes ewer seed in first blossoms of red clover. The ater blossoms of red clover will yield seed without the aid of bumble-bees; but their work adds about 15 % to the yield. So the farmer who destroys all bumble-bees' nests is destroyng a large part of his profit if he raises clover.

Bloomfield, Ind., Dec. 28. J. C. GILLILAND.

[This most valuable communication was followed again by a private letter from Mr. Doottle, inclosing an article from Mr. W. S. Fultz, which the latter says we at one time refused to publish. We have no recollection of this; at any rate, as it seems to be a good one we are glad to give place to it at this time.]

ARE BEES NECESSARY TO THE PROPER FERTILIZATION OF FRUIT-BLOOM?

The assertion has often been made by horticultural journals and bee-papers, that the honey-bee is an essential to the perfect fertilization of fruit-bloom, and that, without the aid of bees, the fruit-grower could not carry on his business with any certainty of a crop, so that the public have got to believe that such is really the case. Bee-journals have been very persistent in asserting that, if there were no bees, there would be no fruit. This is especially the case whenever they hear of any fruit-grower charging that the bees have been destroying fruit.

In studying this question we naturally go back to the early history of the country, and we find that the first settlers of this country found in many places wild fruit growing in abundance. We also find that, in many parts of the country, there were nut-trees of various kinds that showered down their nuts each autumn, and that, within the almost boundless forests, there were trees of all sizes, from the tiny yearling to the giant monarch of the forest, showing conclusively that the nuts and seeds of the forest had been properly fertilized for centuries before the advent of the white man. History also informs us that the first white settlers of America found no honey-bees, and that the first bees introduced into this country came from Europe, and that they were the German or brown bee. What, then, was it that fertilized the wild-fruit bloom, the nut and other trees of the extensive forests of America, to say nothing of the corn, tobacco, and other crops that were raised by the Indians?

In discussing this question with bee-keepers they always refer me to the fact that there were bumble-bees, wasps, hornets, and other honey-gathering insects in the country; but when asked how many of these insects there were in each nest at the time when trees are usually in bloom, they were obliged to admit that the queen was the only one, and that it was utterly impossible that the extensive fertilization necessary could have been performed by them.

When the first settlers from the United States went to California they found various kinds of fruit growing there. Many of the old Spanish missions were noted for the fine fruits that were raised there. The same is also true of Oregon and Washington, and yet there were no honey-bees there. We have a true account of the first attempts that were made to introduce the honey-bee into the Pacific Slope. That account, if given, would make this paper too long, and is not germane to the subject. It is sufficient to say, that fruits of different kinds, both wild and cultivated, were raised without the aid of the honey-bee. I might here add that the Mormons found the same state of affairs to exist in Utah that the early American settlers found on the Pacific Slope. So much for history, now for personal observation.

The winter of 1871 will long be remembered by the bee-keepers of that time as one of great disaster. Fully 75 per cent of all the apiaries of Eastern Iowa and Western Illinois were wiped out of existence, and the others were so decimated that, in nearly every case, not more than three or four hives of bees were left, and those were very weak during the early part of the following summer. Several apiaries with which I was acquainted, that had contained 100 hives of bees and over, were entirely wiped out of existence, and bee-keepers in Muscatine Co., Iowa, and in the adjoining county of Mercer, in Illinois, sent to Western Kentucky for a supply of bees to get a new start. These bees were not brought until after fruit-bloom. The cause of the great mortality to bees was said to be poisoned honey that had been gathered by them during the previous summer. In the summer of 1872 we had a good crop of fruit, although there were no bees to fertilize the bloom. I have also a record that shows that it was a good year for nuts, and that walnuts and hickorynuts were plentiful.

I now wish to draw your attention as a fruit-grower to the methods in vogue in securing the proper fertilization of strawberries. No fruit-grower would think of planting a variety of strawberry that was pistillate more than 16 feet from a staminate variety. If he did, he would not expect to secure much of a crop from them for want of proper fertilization. If, as has been so often asserted. the proper fertilization is secured by the honey-bees. then there would be no necessity of this close planting, as the bee usually, in its flight from flower to flower, covers much more than the distance mentioned. I must, however, say that, after close observation in my 20 years' experience as a fruit-grower, I never knew bees to work on strawberry bloom to any extent, and some years they scarcely visit the strawberries at all when in bloom; yet they were properly fertilized, and produced a good crop, showing conclusively that the fertilization of the strawberry takes place without the aid of honey-bees.

As boy and man I have kept bees for over 40 years, and during the first 30 years of my experience I frequently sowed buckwheat, so that my bees would have fall pasture; but I have to record the fact that more than half the time that I raised buckwheat my bees never gathered a pound of buckwheat honey, and yet it never made any difference whether the bees worked on the buckwheat bloom or not. I got a crop of buckwheat all the same. Nature did its own fertilizing. Four years ago one of my neighbors had five acres of buckwheat within half a mile of my apiary of 35 hives of bees, and I watched that buckwheat closely, in hopes of getting a good supply of fall honey; but my bees never visited it, and I got no buckwheat honey; but my neighbor did get a good crop of buckwheat.

Basswood is one of our best sources of honey, and basswood raises seed just the same as fruit-trees raise fruit, and it is just as necessary that the bloom of basswood and other forest-trees be fertilized to make them bear as it is that fruit-trees should be fertilized for the same purpose. Some seasons I have known basswood-trees to be laden with bloom, and the bees worked on it in swarms from daylight until dark, and the same years the trees would be full of seed, and other years the trees would be loaded with bloom, and not a bee would visit them, and yet the trees would be loaded with seed. The past summer was just such a season with us. Every day during basswood bloom I passed ten or twelve basswood-trees from four to six times in making my trips to market with berries; and although the trees were fairly covered with the large clusters of bloom, a careful watch never showed a single bee on any of the trees, and yet those trees were properly fertilized, as shown by the large crop of seed.

I have been living where I now live, for 22 years, and in my dooryard are several good-sized oak-trees. I have watched those trees when in bloom, and find that some years the bees work on the bloom, and other years they take no notice of it whatever, and it makes no difference whether the bees work on it or not. The trees raise acorns every year when they bloom. Wheat, oats, and other small grain, produce pollen just the same as fruit and forest trees, and fertilization is just as necessary to them as to fruits; yet the claim is never made that bees are necessary to the fertilization of these crops. The fact is, bees do so little work on them that they are lost sight of in a discussion of this question. It must be admitted, however, that, if nature can properly fertilize these crops without the aid of bees, it can fertilize fruit or any other crop without their aid.

Sometimes the statement is made, that certain kinds of fruit in certain specified localities have failed to produce fruit, and that the introduction of bees into that locality has caused an entire change, the bees being credited with fertilizing the bloom, and thus causing the trees to become fruitful. This claim, in the absence of more pronounced experiments, is not to be relied on. Many orchards have failed to bear fruit for a number of years, and then become fruitful, although bees were plentiful every year. In the spring of 1892 my orchard bloomed profusely, as did all other orchards in Muscatine Co. The spring was rather wet, but yet there were days when the bees worked briskly, and gathered both honey and pollen, and yet we had no fruit. The cause of the failure to bear fruit was not for want of proper fertilization. The present year we had no apples, and other tree-fruits were scarce, and the cause of the failure was not for the want of proper fertilization, but from other causes. We are in hopes of a good crop of fruit next year; and if we get it we shall not give the bees the credit, as they failed to give us a crop the past two years; and should the same or a similar calamity that overtook the bees in 1871 overtake and wipe tnem out of existence, and should we get a good crop of fruit next summer, we will not blame the bees for our failure the past two years, for we know the causes have been entirely outside of any influence they have had.

There is much more that might be written on this subject; but enough has been given to show that there are two sides to this question, and that the only way to bring out all the facts and arguments bearing on the subject is to have an unbiased and unprejudiced discussion of the same.

I might add, that, after 20 years' study of the matter, I now believe that nature never intended that vegetable productions, in their love-embrace, should ever require the aid of a third party, any more than the human family or animals, and that nature has furnished every living species or kind the power to reproduce itself within itself. W. S. FULTZ.

Muscatine, Ia.

[This is pretty well answered an article which we published in 1891, Sept. 15, from the pen of Prof. Cook. Our comment appears further on. It is not our custom to reprint old articles; but in this discussion many of our present readers may not be able to refer to the back number mentioned.]

The producers of flower-seeds in our cities keep bees in their greenhouses, as they find this the easiest and cheapest method to secure that more perfect fertilization upon which their profits depend. Secretary Farnsworth, of the Ohio Horticultural Society, could account for a very meager crop of fruit a few years since, in his vicinity, after a profusion of bloom, only through lack of pollenization. The bees had nearly all died off the previous winter. I have often noted the fact, that, if we have rain and cold all during the fruit-bloom, as we did in the spring of 1890, even trees that bloom fully are almost sure to bear as sparingly.

Darwin's researches considered insects as a whole, and it is true that all insects that visit flowers, either for nectar or pollen, do valuable service in this work of pollenization. Thus many of the hymenoptera, diptera, and coleoptera, and not a few lepidoptera, are our ever ready helpers as pollenizers. Yet early in the season, in our northern latitudes, most insects are scarce. The severe winters so thin their numbers that we find barely one, whereas we can find hundreds in late summer and early autumn. In late summer the bumble-bees and paper-making wasps number scores to each colony, while in spring only one fertile female will be found. This is less conspicuously true of solitary insects, like most of our native bees, and wasps; yet even these swarm in late summer, where they were solitary or scattering in the early spring. The honey-bees are a notable exception to this rule. They live over winter, so that even in early spring we may find ten or fifteen thousand in a single colony, in lieu of one solitary female, as seen in the nest of bombus or vespa. By actual count in time of fruit-bloom in May, I have found the bees twenty to one of all other insects upon the flowers; and on cool days, which are very common at this early season, I have known hundreds of bees on the fruit-blossoms, while I could not find a single other insect. Thus we see that the honey-bees are exceedingly important in the economy of vegetable growth and fruitage, especially of all such plants as blossom early in the season. We have all noticed how much more common our flowers are in autumn than in spring time. In spring we hunt for claytonia, the trillium, and the erythronium. In autumn we gather the asters and goldenrods by the armful, and they look up at us from every marsh, fence-corner, and common. In May *our* flowers demand a search, while in California the fields of January and February are one sea of blossoms. The mild California winters do not kill the insects. There a profusion of bloom will receive service from these so-called "marriage-priests," and a profusion of seed *will* greet the coming spring time. Thus our climate acts upon the insects, and the insects upon the flowers, and we understand why our peculiar flora was developed. Yet notwithstanding the admirable demonstrations of the great master Darwin, and the observations and practice of a few of our intelligent practical men, yet the great mass of our farmers are either ignorant or indifferent as to this matter, and so to the important practical considerations which wait upon it. This is very evident, as appears from the fact that many legislators the past winter, when called upon to protect the bees, urged that fruit-growers had interests as well as the bee-men, not seeming to know that one of the greatest of these interests rested with the very bees for which protection was asked.

Now that we understand the significance of the law of adaptation in reference to the progressive development of species, we easily understand why our introduced fruits that blossom early would find a lack of the "marriage-priests," and why it would be a matter of necessity to introduce the honey-bee, which, like the fruits, are not indigenous to our country, just as the bumble-bee must go with the red clover, if the latter is to succeed at once in far-off New Zealand.

It is true, that we have native apples, cherries, plums, etc. But these, like the early insects, were scattering, not massed in large orchards, and very likely the fruitage of these, before the introduction of the honey-bee, may have been scant and meager.

Now that spraying our fruit-trees with the arsenites, early in the spring, is known to be so profitable, and is coming and will continue to come more generally into use, and as such spraying is fatal to the bees if performed during the time of bloom, and not only fatal to the imago, but to the brood to which it is fed in the hive, it becomes a question of momentous importance that *all* should know that bees are valuable to the fruit-grower and the apiarist alike, and that the pomologist who poisons the bees is surely killing the goose that laid the golden egg. That bees are easily poisoned by applying spray to trees that bear nectar-secreting blossoms, at the time of bloom, can be easily demonstrated by any one in a very short period of time. It has been demonstrated in a frightfully expensive manner in several apiaries in various parts of the country. Several bee keepers, whose all was invested in bees, have lost all this property, all because some fruit-growing neighbor either thoughtlessly or ignorantly sprayed his fruit-trees while in bloom; and this in the face of the fact that, for the best results, even in the direction sought, the spraying should be deferred until the blossoms fall. I have demonstrated this fact, where the results were entirely in sight. I have shut bees in a cage, and given them sweetened water, containing London purple in the proportion of one pound to 200 gallons of water, and in 24 hours the bees were all dead; while other bees, in precisely similar cages, and fed precisely the same food, with the poison omitted, lived for many days.

We thus see that it becomes very important that pomologist and bee-keeper alike know the danger, and also know the loss to both parties in case caution is not observed to avoid the danger and probable loss. It is also important that, by definite experimentation, we may learn just how important the bees are in the pollenization of plants. To determine this point, I tried many experiments last spring. I counted the blossoms on each of two branches, or plants, of apple, cherry, pear, strawberry, raspberry, and clover. One of these, in case of each fruit or each experiment, was surrounded by cheese-cloth just before the blossoms opened, and kept covered till the blossoms fell off. The apple, pear, and cherry, were covered May 4th, and uncovered May 25th and May 19th. The number of blossoms considered varied from 32, the smallest number, to 300, the largest. The trees were examined June 11th, to see what number of the fruit had set. The per cent of blossoms which developed on the covered trees was a little over 2, while almost 20 per cent of the *uncovered* blossoms had developed. Of the pears, not one of the covered developed, while 5 per cent of the uncovered developed fruit. Of the cherries, 3 per cent only of the covered developed, while 40 per cent of the uncovered blossoms set their fruit. The strawberries were covered May 18th, and uncovered June 16th. The number of blossoms in each experiment varied from 60 in the least to 212 in the greatest. In these cases, a box covered with cheese-cloth surrounded the plants. The plants were examined June 22d. Eleven per cent of the covered blossoms, and 17 per cent of the uncovered had developed. To show the details, in one case 60 blossoms were considered, 9 of which in the covered lot, and 27 in the uncovered, had developed. That is, three times as many flowers had set in the uncovered as in the covered. In another case of 212 blossoms, the fruit numbered 80 and 104. In a case of 123 blossoms, the number of fruit was 20 and 36.

These experiments agree with similar ones of former years, in seeming to show that strawberries are less affected than other fruit by the exclusion of insect visits. The raspberry canes were covered with cheese-cloth May 30, and uncovered July 6. In every case but one the canes seem to have been injured by the covers, and so the results were not considered. In the exceptional case, 184 blossoms were considered; 93 blossoms developed on the covered canes, and 160 on the uncovered. In every case the fruit on the covered twigs was inferior. It might be thought that the simple presence of the covers was prejudicial; though this could not be a very important matter, as blossoms covered after the bees had freely visited them set well, and showed no injury. Thus we see that, in all our fruits—strawberries the least—the free visits of insects during the period of blooming is absolutely essential to a full or even a fair crop. In many cases the covered blossoms all fail to develop. We also see that, where fruitage does occur, there seems a lack, as the fruit lacks vigor. The free and ample *cross-fertilization* seems to be requisite, not only for a crop, but for a perfect development and maximum vigor.

Our experiments with clovers were tried with both the white and alsike. While the uncovered heads were full of seeds, the covered ones were entirely seedless. This fully explains the common experience of farmers with these plants.

Having the law of the necessity of insects to accomplish this function so well demonstrated, it might be asked, "Why do we have *any* fruit in case the blossoms are covered?" This seeming exception may be no exception. Indeed, this may come from the fact that *all* insects are not excluded. Very many insects, like the thrips, and various of the jassidæ, which we know are often attracted to flowers, either by the pollen or nectar, would be concealed about the plants, and, from their small size, might gain access, even after the covers were adjusted. These would be sufficient to secure partial fertilization, and very likely are the cause of the meager crop which, in a few cases, we secure, even on the covered twigs.

In case of strawberries, our experiments this year, like some previously tried, seemed to show that the presence of insects, though important to a maximum production, are not so necessary as in case of nearly all other fruit. But we must remember that the strawberry-plants are not wholly inclosed. A cloth-covered box rests on the ground about the plant. This gives a fine chance for insects that burrow in the earth, and for insects that have pupated in like position to come up during the three or four weeks of the experiment, and pollenize the blossoms. This, though a possible, and (shall I say?) a probable explanation, may not be the real one. But we can still affirm, in case of the strawberry, that the free visits of insects serve surely to much enlarge the production of fruit.

Thus we see that our horticulturists and farmers alike, with the apiarist, are dependent for the best prosperity on the presence and well-being of the bees. They should realize this fact, and should demand that our legislators not only become informed, but act accordingly.

[In the *American Bee Journal* for Dec. 14 appears a letter from G. W. Brodbeck, of Los Angeles, Cal., one of the leading bee-keepers of the State. We have room for only two paragraphs of his valuable article, and here they are:]

The California State Fruit-growers' Association has been in session here this week; and, being interested to some extent in fruit culture, as well as bee culture, together with Mr. McIntyre (who was a delegate), we heard much of interest to fruit-growers, and, at its close, something that caused us bee-keepers to prick up our ears and listen with close attention.

The subject was "Fertilization." A gentleman stated that he had a friend in this State who started into fruit-growing several years ago, locating 35 miles from any fruit-growing section, or where any bees were located. The first year that his trees blossomed, and in expectancy of at least some returns from his orchard, what should be the result but complete failure! He was advised to procure some bees to aid in the fertilization of the blossoms, and since then his orchard has been productive.

[Again, in the *American Bee Journal* for Jan. 4 appear also two paragraphs from the pen of C. J. Berry. He is Horticultural Commissioner for Tulare Co., an inland county that has of late made great progress in the fruit-industry. Mr. Berry, whose orchard contains 440 acres, writes:

> Bees and fruit go together. I can't raise fruit without bees. Some of the other cranks say I'm a crank; but I notice there is a pretty good following after me, hereabouts, and they keep a-comin'.
>
> Yes, sir, 'e. I have bees all about my big orchard. *Two years in succession I have put netting over some limbs of trees; and, while they blossomed all right, nary fruit; while on the same tree, where limbs were exposed to the aid of bees, plenty of fruit.*

Italics are ours. Such statements, coming from the fruit-men, are certainly strong evidence in favor of the bee. We may think that the statements from the bee-keepers would be biased; but when the *fruit-men* turn around and defend the bee, as they surely have done, will do, and are doing, the old-time opposition will gradually break down.

This symposium would be incomplete did we fail to make mention of the fact that, some three or four years ago, in the State of Michigan a convention of fruit and bee men assembled together for the purpose of discussing their *common* interests. The fruit-men acknowledged generally that the keeping of bees in the vicinity of their orchards was an important factor in the production of fruit. At various conventions of the Michigan State Bee-keepers' Association there has been furnished abundance of evidence, from bee-keepers and fruit-growers, that points in the same direction. Indeed, fruit-growers often become bee-keepers —not from the honey the bees may furnish them, but because they have found it necessary to keep bees in order to secure the perfection of fruit.

You will see that we are disposed to be fair in the matter, because we have given "both sides." But we are not at all afraid but that, when all the evidence is weighed, the balance of testimony on the bee side will completely overbalance the testimony on the other side.

The statement in the *Rural* (see Dr. Miller's article), that fruit has grown where no bees were known, proves nothing. Potatoes, wheat, and all other crops, will grow on poor land; but it would be foolish to say that there would not be *larger* crops on good land, or under other conditions more favorable. It is equally foolish to assert that, because fruit has been grown remote from bees, the importation of bees into that vicinity would have no effect. Again, the point is made by friend Fultz, that nuts and some other kinds of fruits, etc., were known to grow without the fertilization of any bees. Bee-keepers do not claim—indeed, it would be foolish to do so—that *all* products whatsoever depend for their fertilization upon the agency of the bees. All we claim is, that a large number of fruits are *assisted*, both in the quality and quantity of fruit.

Although we have given considerable space to this question in this issue, we still hold our columns open for further discussion either way; and when the whole has been secured we propose to put it in pamphlet form, and place it in the hands of bee-keepers for general distribution, at the mere cost of printing. This sort of "knock-down evidence," placed in the hands of fruit-growers that are at all intelligent and disposed to be fair, will remove opposition at once, and show clearly that their old-time opposition, if it existed, was simply trying to "kill the goose that laid the golden egg."—ED.]

RAMBLE 100.

IN THE BRUSH.

How mistaken our good people of the East are when they picture in their mind's eye the appearance of the uncultivated country in Southern California! "Why," said an Eastern friend in a letter to me, "I should think that you would be afraid to live all alone away off in the woods."

"Yes," said I to myself; "woods!" Then I went out of my cabin, and could see not a woods at any point of the compass — nothing but brush, and but little appearance of green at that. In the distance, and around some ranch, or in some embryo town, a few tall gum-trees might greet the vision, while a climb up the rocky side of the mountain would perhaps reveal the deep green and woodsy appearance of the distant orange-groves. So it is, that the first settlers here use the *machete* (*mah-chay-tay*) for cutting and grubbing brush, instead of using the ax, which was made for the sturdy trees. The Mexicans are expert in the use of the former, and their loads of wood, or, rather, loads of the roots of chemise-bushes, are found for sale upon the streets of all of our towns.

Although there is but brush, it seems that nature has been at work here for several years preparing the surface of the country for habitation, and nature comes in for an immense amount of credit for so admirably fixing the surface for irrigation. The mountains, acting as great reservoirs for the water-supply, and the broad valleys between, level in appearance as a floor, but with incline enough to allow the water to flow in the irrigating-pipes to the appointed place. The valley in front of the Rambler's cabin is more than ten miles wide, and stretches away to the west until its level floor is lost in the haze of the distance. A great share of this area is still in the brush, the home of the owl, the coyote, and the jack-rabbit. Generally the air is so clear that the distant mountains stand out plainly, and seem very near; but a drive to them is long drawn out and tedious.

In the brush we find the settler taking up land here and there, and in many cases the house at first is of the most primitive character, made of brush by which he is surrounded, or it is a tent; or if a board house, its dimensions are of the most contracted and economical plan. I have noted one splendid feature about these one and two room houses; and that is, the amount of house-cleaning that is avoided by the good housewife, if perchance there is a wife—only an 8 x 12 floor to sweep and mop; only two (or at most three) windows to wash; one bed to make. Why! these pioneer women have an easy time of it when it comes to the care of a house. No surprise-parties. You may know that it is an indication of an advance toward a higher civilization when you hear of such parties in this country, for it means the building of more commodious houses.

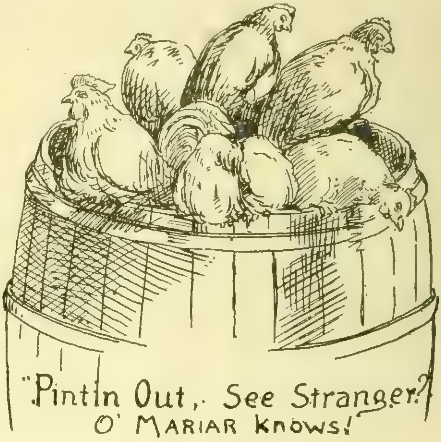
In the brush we find many queer characters and methods of living. Here is a little house with barely two rooms. The dog barks as we approach; the cat whisks around the corner; there are also a few blooded hens sitting at ease around the door. In the course of conversation with the man of the house, the poultry business came up for consideration.

"Yes," says he, "Mariar" (his wife) "was bound to have some poultry, though they are as much bother as we get out'n 'em. You see," said he, "we have no poultry-house, and the coyotes have a special liking to good fat poultry; and just now Mariar roosts her poultry in the parlor."

"Why!" said I, "your chicks will get too high-toned with such treatment. Besides, I should think that the floor would show the wear and tear of the poultry business."

"Ha! ha! there's where you are mistaken. Mariar just knows this poultry-business to a dot. She sets an empty barrel in the parlor, the upper head is taken out and she roosts the poultry on the barrel with their heads pintin' out—see, stranger? If the rooster gets oneasy during the night thinking about his family, and indulges in an unseasonable crow, Mariar is sure to give me an unseasonable dig in the ribs, and say, 'Isaac, will *you* get up and see if that rooster is turned the wrong way on the barrel?' A good many times, especially just before a norther, which seems to make every thing oneasy, I have to turn the poultry heads pintin' out on the barrel; it's a tarnal bother; but Mariar has got this poultry-business down fine, and Mariar is a good woman, and a tidy housekeeper; but I'm bound to have a coyote-proof poultry-house in a few days."

At another place in the brush I found another tucked-up little cabin, occupied by a lone and grave-looking bachelor. I had lost my way; in fact, that day I was sort o' exploring the country, and had driven right across lots to this man's apology for a house. I was looking for the residence and person of Mr. J. Sealer, and made the proper inquiries. The sedate bachelor pointed out the location of the residence, across acres of brush, and a schoolhouse loomed up in that direction.



"Pintin Out,- See Stranger? O' Mariar Knows!

"What town is that?" said I, "where we see that schoolhouse?"

"W-a-l-l," said he with a drawl, "that-is-called-by-some-Sucker-t-e-o-w-n; yes," said he, "Mr. Sealer lives right around there somewhere. He-is-one-on-'em."

I left my lonely rancher with his dog and his newspaper, and proceeded until I felt as though I was getting off the trail again, and I pulled up to a more pretentious residence, and again inquired for John Sealer. This time I found that I had struck a full-fledged Dutchman.

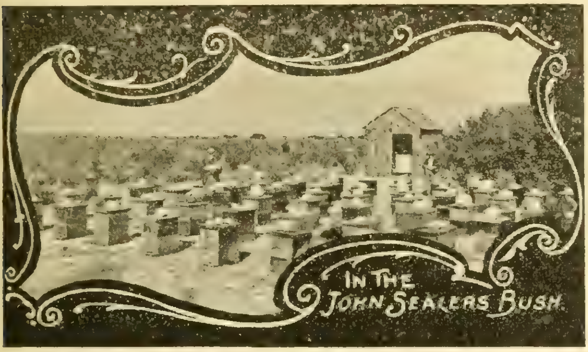
"You vants to know vare liffs Chon Zealer? Dos you zee ze leedle end of dot housen mit the drees? Vell, dot Chon Zealer liffes there in dot nex housen."

"Let's see," said I; "I suppose this is Suckertown."

"Vat you calls it, Zuckertown? No, mine cracious; whoever says dhis is Zuckertown is one kosh-fired liar—*Vest Rialto* all ze time—ze pest colony in California."

Without further trouble I found Mr. Sealer's residence, and found him also to be a Dutchman, but of the Pennsylvania order, and he is a way-back bee-keeper—back east as well as in California. I had met Mr. S. just once before, and that was at the famous rabbit-hunt where we shot the jumping pests, and drank lemonade together from the same tin cup. Mr. Sealer and his brother have started in here under very favorable circumstances—have each a fruit ranch of ten acres, all in growing fruits, and have a fine apiary of some less than 100 colonies, all in the brush near by.

Mr. S. and his whole family scouted the idea that this town was called Suckertown, and imputed evil motives to the man in the cabin. Mr. Sealer's bees are of the dark order of Italians; and as he had very good success in the East with a strain of Italians bred by a Mr. Metcalf, he had ordered queens from him since he came to California. This same strain of bees in the East was quite gentle, and it was a pleasure to work with them; but out here they were very cross, and that is the general experience with bee-keepers who have managed bees both in the East and in this far West. In the East you can handle bees with impunity while they are gathering honey; and the more bountiful the honey-flow, the more wondrous kind they get; but here, the greater the bonanza they are working, the more angry they are, and they will go half a mile to find something to sting. During the extracting season, that length of old rusty stovepipe that sticks out from the Rambler's cabin roof is a persecuted object. They rattle against it about as you would rattle a typewriter. I have thought sometimes that it was their telegrams for some of my excellent pancakes—but I digress.



Mr. Sealer wanted me to see some more of the country to the north of his location, and we accordingly journeyed onward toward the Cajon (Cahoan) Pass. Mr. Bonart, another full-blooded German bee-keeper, we found about five miles along on our journey. His apiary was also in the brush, and evidently had no care except to take the honey from the hives at the proper time. There were either 350 or 400 colonies in the apiary; the owner did not know to within 50 or 75 colonies of how many he did have. Mr. Sealer assured me that Mr. B. was a warm-blooded Dutchman, and very cheerful; but to-day he was in a sad state of mind over the fact that his wife was dangerously ill with the pneumonia. His main idea seemed to be that, if she should die, every thing would be so lonesome whenever he would go into the house where he always found her. I sympathized with him for a short time in English, and then Mr. Sealer sympathized with him in Pennsylvania Dutch, and I was afterward greatly pleased to learn that his true and tried wife was on the road to recovery. The main thing to be noticed around Mr. B.'s ranch is the fact that bees and grapes seem to harmonize. Aside from the bees, the ranch is devoted to fruit, and there are many acres of wine grapes. Mr. B., having emigrated from the land of beer and wine, his principles are strongly bent wineward, and his grapes are carted by the ton to the nearest winery. Mr. B. says that the bees work at the grapes, but the greatest damage is done if the grapes are left on the vines too long; otherwise there is little damage done. He finds many other enemies to grapes; but the bees, going with a vim, for the remnants, get all the blame. Mr. B.'s neighbors, who are more or less in the fruit and grape business, were going to drive his bees out; but Mr. B., hearing of the Bee-keepers' Union, became a member, and vociferously declared his intention to hold fast to his bees, and he does unto the present day. Being about the first man to reclaim that portion of the wilderness of brush, he claims to have a prior right to stay there with all of his apicultural possessions as long as he pleases.

His honey-pasturage is acres of sage and many other honey-producing plants. The peculiarity of the growth of honey-plants here seems to be certain plants in certain localities. Here we would drive through hundreds of acres of wild alfalfa; a few miles further along, wild buckwheat would have full possession; then there would be acres, or, more like, square miles, of sage-bushes. Mr. B.'s workers, in order to get to these various fields, had merely to change their course of flight, or to fly a little further in certain directions. Mr. B.'s ranch showed much hard work, and also bore the evidence of genuine German thrift. The only thing that seemed uncared for was the apiary. I suppose the reason might be, that, while a grapevine or a tree will not bear fruit unless it receives irrigation and thorough tillage, the bee-hive will produce honey, even if surrounded with brush, and be left from year to year in an unkempt condition.

It would probably be useless to argue with such men, that better results could be secured if the apiary were kept clean. A clean apiary, however, whether giving better results or not in pounds of honey, is a better place in which to work; and a handsome apiary is always a pleasure to the eyes of the

RAMBLER.

CALIFORNIA ECHOES.

BY RAMBLER.

We seldom see a bee-tent in a California apiary. The reason in many cases is, that what work can not be done during the busy season is not done at all, therefore there is no use for a tent. Mr. Arthur Hansen, of National City, however, has a tent of great utility. When not in use as a bee-tent, an extra covering of heavy cloth is pulled over it, and it makes a tent to live in. Other California bee-keepers can take the hint, and have just as convenient a tent as Mr. Hansen.

What is the matter with those New York bee-keepers? One who raises his honey by the dozen tons writes to us about coming to California. Well, we suppose there is room enough for him here; but we advise him to stay where he is. If his lungs or his heart is out of kilter, the advice would be different. This climate heals the sick. It also heals the lacerating wounds of those who have met with heavy winter losses. Perhaps that is why the New-Yorkers wish to come here.

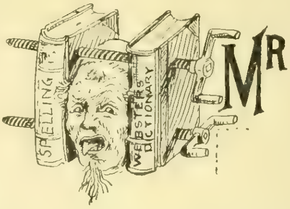
Speaking of heart trouble reminds me of a letter I received from a young man who said that his best girl had gone back on him, and he wants to know if there is any solace for a broken heart in the wilds of California. Why, my dear young friend, of course. When you have lived a year in a bee-rancher's cabin, and listened nightly to the musical notes of the festive coyote, you will forget that you have a heart at all at all. By all means, come to California.

And now we see that the *A. B. J.* suggests Bro. Larrabee's name for that Vermont experiment station. It is our opinion, that, if Bro. Larrabee, after swinging himself around in the great State of Michigan, goes back to Vermont, we shall expect to hear that he has stepped off into Lake Champlain, or stumbled over into New Hampshire. Why! we don't believe Vermont is big enough to hold him. Say, Bro. Larrabee, make a break and come to California; there's room enough for you and three of the New England States right here in this one San Bernardino Co. If your brother Walter is bound to stay by the old hopvine and apple-tree, put the experiment station with him. But, Johnnie dear, we want you in the glorious sunset country.

"You press the button and we will do the rest," is about the way the Rambler and the artists have it in those cartoons in GLEANINGS; but sometimes the artists do too much. Now, on page 927 they have cut the fields up with rail fences. Why, bless you, Mr. Artist, we have not seen a rail fence since we came to California. We are not grieved over it, however; but every Californian will stare at those rails, and miss seeing that nice doxology hat of the RAMBLER.

JAKE SMITH'S LETTERS.

HINTS ON SPELLING.



MR *A. I. Gleenings: deer sir*—Did you hef to learn to spell when you was little, or when you was a man? Or mebbee you have so many to work for you that you hire a hand to spell for you. Well, I don't think much of the fashionable way of spellin, and I think my way is a good deal better. When I want to spell a word I believe in spellin it what it is, and not puttin in a whole lot of letters that make it spell something altogether different. If I write the word *reseat*, I believe in spellin it that way so any body can tell what it is, and not write it any such fool way as *receipt.* And if I write about Kernel Smith, I believe in spellin it *Kernel* or *Kurnel* or *Curnel*, or some such way so as to have it make the word Kernel. But the fashion makes it spell *Colonel.* What an nfolonel way of spellin that is, anyway!

But my famaly—leastways the young folks—got it into their heads that my spellin was not up to the latest style, so Zed he's been teachin me to spell. He made a blackboard, and then he put on it words spelt the right way, and then under each word he put the fashionable way of spellin it, like this:

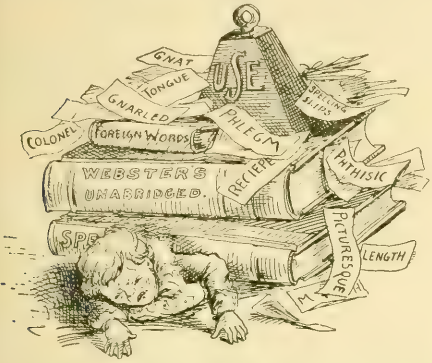
tung	throo	wir	fokes	tizick
tongue	through	were	folks	phthisic

Then he told me to sit down and practice writin them till it was easier that way than the old way. I tell you it was harder work than I ever dreamed of. Why, I'd a heap rather go out and thrash with an old-fashioned flail all day than to try to learn sich outlandish things. But I kep at it, and I thought I was gettin on pirty well. Then I thought I might as well be learnin some more words to spell in the fashion, and it would please Zed to think how I was gittin along. So I wrote, "In the yard were a cere and a cat with white fere which did pere till she got a bere in here fere." But afterward Zed said it ought to be, "In the yard were a cur and a cat with white fur which did purr till she got a burr in her fur."

Another verse I wrote was, "Through all the night, tough lovers trough did silently wough." But Zed said that ought to be, "Through all the night, two lovers true did silently woo."

But the verse I laid myself out on most, trying to git it up in real high style, was this: "The man with the phthisic phthook phthwo phtheaspoonfuls of phthansy phthea." And, if you'll believe it, Zed said that must be, "The man with the phthisic took two teaspoonfuls of tansy tea." Do you wonder I felt a little discurridged?

Now, Mr. Gleenings, I've been thinkin this matter over, and it seems to me something ought to be done about it. Zed was readin that it took from 2 to 4 years more of the life of a child to git his schoolin now than it would if this nonsensickle way of spellin was abolished, and every letter had just one sound and every sound one letter. Why, the way it is now, when a boy writes a word he knows he's writin it what it don't spell, and how much different is that from tellin a lie? Is it any wonder that people that spell that way git to lie and steal?



Now jist you tell me, if it was grown-up folks that had to learn to spell, and they knew that spellin the fool way it is now would take 3 or 4 years longer to learn, or even if it was only 1 year, jist tell me how long that thing would be stould. Why, there would be rebellion about it in no time, and partitions would be sent to congress, and the president's message would be full of it, and laws would be passed to change it right off. But because it's little children that can't help theirselves, the thing goes on from year to year. I tell you, it's an outrage, and the society for the prevention of cruelty to children better quit foolin about children bein took out of school to ern a livin, and save them the years they waste on this wrong way of doin things.

If all the money that's spent every year for teachers to teach the extra years was put along with the money that could be saved on paper and printin and ink for sighlent letters that only make trubble in spellin, if all that money could be saved it would send bibles to all the heathen.

Now will you please think it over, and print what you think about the shamefool oppression of innocent little children? JAKE SMITH.

APICULTURE IN RUSSIA.

BEARS AND BEES; BEES IN TREES.

The wild bees of Russia are somewhat more fuzzy, blacker, and thicker, than the domesticated ones. They build their combs in hollow trees, where they are sought for by the bear and the honey-cuckoo—the latter serving at least as a guide to man. Without being in the least cared for, the bees yield their tribute of honey and wax, although not willingly. As the bear, after satisfying its appetite, takes no further thought for the continued work of the bees, just so careless are men, very often, in working with wild bees.

Bee culture in its primitive state is prosecuted with great vigor in Russia, and especially by the Bashkirs. The greater part of the bee-gums there are in the woods, where these insects gladly avail themselves of the accommodations provided for them. With this object in view, the Bashkirs choose the strongest and straightest trees, of the hardest kind of building timber, in which, at a height of from 18 to 24 ft. above the ground, they construct the bee-houses by hollowing out the trunks of these trees smooth and even, with a tool resembling a chisel; and then the men close the entrance with a board, in which are bored small holes for the bees to crawl in and out. The dexterity with which the Bashkirs do this work, and climb the tallest and smoothest trees, is very surprising. Below the bee-houses the limbs are all carefully cut off, so as to render it more difficult for the bears to climb up the trees to get honey. But in spite of all this, these animals, which are still plentiful enough in the Ural Mountains and forests, prove to be the most dangerous foe to the bee-keeping industry.

But double-walled hives are now known in Russia, made of thick plank. The whole hive-body is so solid as to be practically bear-proof. At all events, bees in such hives enjoy the greatest immunity from cold. The frames of these hives have a height of about 26 inches, with a breadth of about 10 inches. The inside width of the hive-body measures about 11½ inches. This space of 1½ inches (between the ends of the frames and the sides of the hive), or ¾ inch on each side, is just about filled by the thickness of the wood composing the end-bars of the frames. The space above the frames is divided by three movable partitions into four divisions. The hives have a double bottom, with a space between of about 1½ inches, which is stuffed in winter. KARL R. MATHEY.

Medina, O., Jan. 1, 1894.

"RAISING" BEES.

A CHEAP DEVICE TO MAKE BEES LET PASSERS-BY ON THE HIGHWAY ALONE.

BY WILDER GRAHAME.

More than once my neighbors had been annoyed by my bees attacking them as they were passing along the road a short distance off, and more than twice I had been appealed to to abate the nuisance. The matter was becoming serious, especially as I could see no better location for my hives. Whichever way I turned them, a road or neighbor's yard was right in range; and, besides, after the bees left the hive they would go in whichever direction they preferred, any way. I found, however, that where they issued from the opposite side of the hive from their pasture-field, they usually rose somewhat higher before they reached the road. Still, this was only a partial remedy, and I determined to observe further. I was not long in discovering that few if any of my bees went to their highway attacks "with malice aforethought." Instead, they were making the traditional (though not the traditionally straight) bee-line for their forage-ground, when, just as they would attempt to cross the road, along would come some useless thing bigger than themselves, and block the passage. I have noticed that it doesn't matter particularly whether a person runs against a club or the club falls against the person, if the velocity is the same. That is probably the way a bee looks at it, and bees don't like to be insulted. They sit down hard on that at once, and sting. I don't blame them. I have wanted to do the same when I have miscounted the stairs to the first landing in the dark. I have even sat down hard on such occasions, though I went no further than that, till a light came or I had recounted the stairs. But really it isn't a funny matter to the bees, and the neighbors won't admit the joke. So far I had solved the why of the problem. It now remained to seek the wherefore.

There are two safe ways for railroads to meet road-crossings—to wait or be waited for at the crossing, or to switch off on some other line and not cross at all. I saw no way to make the bees wait, so I decided to switch them off. As a first step I built a trellis just inside the garden fence, and covered it as soon as possible with some rapid-growing vines. The trellis was perhaps eight feet high, and consisted of a few posts to which common fence-boards were nailed. This part of the work was done as early in the spring as possible, and the seeds sown as soon as the condition of the soil and climate warranted. Just back of this I commenced work on a more permanent sort of trellis, and set out a row of grapevines. It was late for them, but most of them are thriving, though I don't expect them to take a very active part in my plan for some years. But the vines along the outer trellis grew rapidly, and soon covered the framework with a mass of foliage and bloom.

This contrivance, I have no doubt, interfered with the bees to some extent at first, and possibly submitted to a few severe stings; but it made no complaint, as the neighbors had, and gradually these animated bullets learned to rise somewhat before they shot, and clear the trellis. It was about the most peculiar method I ever heard of for raising bees, but the results were most gratifying. After they are once up in the air they seldom drop much till they approach their stopping-place—certainly not in the short interval between the trellis and the road.

"It is a pleasure to drive past your bee-hives now," said one old fellow last summer. "It is interesting to look up and see that steady stream of bees going zip, zip, and no danger from them. I used to think they went out of their way to sting, but they don't now."

Perhaps they did then; but as they have been turned from that course I feel that I have solved a problem that formerly gave me no little vexation. That is what those vines do. Now about the grapevines starting inside. The quick-growing vines I mentioned are a sort of makeshift that have to be renewed each year. The grapevines, after they obtain their growth, will make a permanent bee-break, and protect my plague-stricken neighbors from further injury.

[We formerly used a high board fence to raise the flight of bees, but we now use instead, with much more satisfaction, a row (or, rather, a hollow square) of evergreens, 18 to 20 feet high, and branches closely intertwining. The board fence was good, but the trees are far better. What is perhaps cheaper and better for most bee-keepers is the rapid-growing vine referred to by our correspondent. The most rapid-growing vines that we know of—those whose foliage is very close—is wild cucumber and woodbine. These two are good, as we happen to know from actual tests. Probably they can be obtained of your nearest nurseryman. The first one is the most rapid growing.—ED.]

BOOK REVIEW.

THE LAST.

Of the remaining bee-books now in our possession, the following may be mentioned as having done much to instruct men in regard to apicultural matters:

A book written by "The Times Bee-master" is the first one that has received attention. It consists of a series of letters written, presumably, to the London *Times*, and here put in book form. The writer (unknown) was "up to the *Times*" in at least one sense, and perhaps in all senses. The letters are of a very miscellaneous character, and are a beautiful combination of practical good sense and a true literary spirit. This book was printed in 1864, in London.

"The Bee-keeper's Manual" was written by T. B. Miner, and printed in New York in 1850. It forms a sort of connecting link between the old and new era in bee-keeping. The author says we know nothing about the sex of worker-bees. His work abounds in many dogmatic statements and consequent errors, which some careful hand has corrected on the margin. The author is very severe on Huber, and condemns him for asserting things which we now know to be true—notably, the visible marks of fecundation of the queen. Mr. Miner wrote about forty years too soon, and yet there are many interesting pages in his book. Do any of the readers of this remember the Miner hive?

Bromwich's "Treatise on Bees" was printed in London in 1783. It is a little book of only 66 pages, but as meaty as an egg. The author was remarkably correct in regard to the different kinds of bees in a colony, and his method of management was certainly as good as his time furnished. Much of the book is taken up with recipes for making mead and wine of honey. The author gives some figures showing that bees can be kept more cheaply in colonies—that is, several stocks in large boxes near together—rather than in separate hives some distance apart. His line of reasoning here would end in the use of what is now called a house-apiary.

"Bagster's Management of Bees" is a book that enjoys the unique reputation of having the most beautiful and correct pictures of the drone, queen, and worker, both natural size and greatly enlarged, of any bee-book we have yet seen. Of course, reference is here made simply to the external appearance of the bee. The coloring was evidently done by hand, in water-colors, and it is truly superb. Just here I notice that some one has written at the foot of the page, "The best illustrations to be found." Correct. This book has no date, but it was printed not long after 1844, in London. It has but little originality about it, being modeled largely after Huish and Huber. It is far better illustrated than most English bee-books of that day, both in quality and quantity. The frontispiece represents three ladies standing in front of a hive that reminds one for all the world of Jake Smith's "pallus" hive. It has a double (or ʌ) roof, and a door in the gable end, the whole resting on a pedestal about two feet high. One of the ladies must be "Misses Barber," while the other one is "Misses Porter," and the one opening the hive so blandly is "Misses J. Smith." The sequel to this hive-opening will be found on page 218 of last year's volume, where Mr. Smith tells us all about it. "Truly, they wuz a sight." This little book of Mr. Bagster's is well calculated to give a casual reader a little touch of the bee-fever, as it presents apiculture in glowing colors—especially the pictures of the bees.

It would be very interesting to know the origin of the remaining bee-books and apicultural tracts not yet noticed. It seems strange that, in a pursuit like that of bee-keeping, when new discoveries crowd so fast upon each other, thus rendering the bee-books of to-day almost useless to-morrow, so much time and money should have been spent in times past in bringing such books to the light. The constant changes made on the A B C of Bee Culture here, impress strongly on my mind the fact that a work on bees has to be changed as frequently as an almanac, in many respects; and why these worthy old English bee-keepers should have imagined that any of their works would be read for any length of time, except as curiosities, is past comprehension. Cook, Cowan, or Cheshire contains more of value and truth than all of these old bee-books put together; yet the man who has read even a part of them is a better man in more ways than one for having done so. The apiculture of to-day is the evolution of all who have labored before us in that direction; and let none of us laugh at the ladder by means of which we have scaled the wall of present knowledge. Much remains to be known; but yet we believe the great fundamental truths of the anatomy and habits of bees, as now stated, will be accepted by future generations, just as they will surely accept our belief that the earth is round, and that it, in common with other planets, moves around the sun, and not the sun around us.

Exeunt Butler, Purchas, Rusden, *et al.*

Medina, O., Jan. 10. W. P. Root.

EXACT SPACING NOT NECESSARY.

COREY, OF SMOKER FAME, GIVES HIS VIEWS.

Bro. Root:—Our esteemed brother Dr. C. C. Miller proposes starting from bedrock, and having things shipshape in his proposed "New-departure apiary." His head is level on one proposition at least—that is, the size of the frame 17⅝ x 9⅛, as it has been so generally adopted.

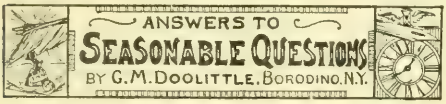
Upon the question of the exact spacing of hanging frames he is away off. The tinner who can not make a set of rabbets for a hive, as straight as an engineer's rule, and a carpenter or mill man who can not saw a set of frames (especially with 1⅛ top-bars) that, when nailed, will hang almost perfectly at the bottom without even ⅛ inch variation, can not hold down a job out here in the wild and woolly West. Then with the top of the hive stenciled so as to have a black mark the width of his space, any frame can be set into the hive without afterward changing its place until the whole set is placed in position.

With the correct views Dr. M. has on most points in bee-keeping, how he has managed to get along with frames, some touching each other at the bottom while others are an inch apart, is beyond my comprehension; but it must be he did, as he made the plain confession on page 883, Gleanings for Dec. 1.

With the clamps we use to hold our frame material while being nailed, and with 8 nails in each frame, they pile up as true as dressed lumber, and are a correct mechanical job in every sense. I have kept bees 33 years, since movable frames came into use, and have seen all the frames, both hanging and closed end, half closed-end, closed and partially closed tops, and have no use for any thing but a hanging frame. If I wish to have them tight for moving, I use spacing-sticks that slide down between the end-bars of frames, which hold them as firmly as tight-fitting or fixed-distance frames. I prefer to have my frames always loose, and resting on hemmed tin rabbets, for about 363 days in the year. In case I want them all tight for moving the other one or two days, I put them in that condition in a short time. Finally, Dr. M., you had better make your frames to suit yourself: but above all things, have them made better than your frames have been made heretofore. When he gets every thing in shape, and has used this new-departure hive, I hope he will tell us all what it is like and how it works.

Santa Paula, Cal., Dec. 7. JNO. G. COREY.

[There is one point that you seem to have overlooked on the rabbet question No matter how accurately they are cut, if of wood, or how accurately made if of metal, little lumps of propolis will collect on the under side of the bearing surface of the top-bars, so that the frames will hang more or less out of true; and, again, there is not one man in a hundred who will nail the ordinary swinging frame (no matter how accurately cut) so that, when the same is laid on a smooth and true surface, like a marble slab, it (the frame) will touch the slab at all points. But suppose he does put them up as true as a die; subsequent wiring, or moisture of the colony, will be apt to throw them out a little. We have looked into the hives of many apiarists, and find that the bottom-bars of swinging frames vary in spacing, as Dr. Miller says. We will venture to say, that we can find the bottom-bars of your frames in like condition. If we can't, it will be the first apiary of loose swinging frames of the kind we ever came across. The only way to get correct spacing is by having shoulders of some kind.—ED.]



ANSWERS TO SEASONABLE QUESTIONS

BY G.M. DOOLITTLE, BORODINO, N.Y.

Question.—As I am about preparing for the coming season, I should like to ask if it is practicable to produce comb honey in marketable shape without the use of separators. If such is the case, it will cost me less in getting up my surplus arrangements.

Answer.—This matter of separators or no separators was a " bone of contention " from six to ten years ago; but of late we hear little about it. At that time many of our prominent bee-keepers, such as Heddon, Hutchinson, Demaree, Tinker, and others, thought that, with proper width of sections, and with black or hybrid bees, where a good honey-flow was the rule, separators might be dispensed with, and the crop of honey ilt edged " for market. Others, who were more reserved in their opinions, like Dr. Miller, thought it best to go slow, as they were not making a success in trying to get along without separators. Still others, like myself, who generally glassed their honey (as the eastern markets called for a certain amount of glassed honey), claimed that it was impossible to do away with separators and yet have the faces of the comb even enough so they could be glassed, without damaging them to a greater or less extent. I have several times tried to do away with separators, but each trial has resulted in loss, so with me I can say it *is not* practical to try to produce honey without separators, even did the cost of separators become double and treble what they now are. If any person is now raising comb honey largely for market, and not using separators, I am not aware of the fact, and would advise no one, especially a beginner, to try to raise comb honey without their use.

Question.—How about reversible frames? Do you use them, and is there enough gained by their use to pay for their extra cost and the extra manipulation required?

Answer.—Here again we have one of the disputed questions of the past. Reversible frames had a more extended " airing " than did the no-separator matter, multitudes of plans for good reversible frames and their manipulation being placed before the readers of the bee-papers some eight or ten years ago; but, if my memory serves me rightly, I saw the names of many of our most prominent apiarists, in the query department of one of our bee-papers, on the negative side of this matter not long ago; and if any are now making a business of using and manipulating reversible frames I am not aware of the fact. The main object for which they were brought into existence was that of compelling the bees to store all their honey in the sections by reversing the frames as often as the bees lengthened out the cells along the top-bars of the frames and filled them with honey, thus placing this honey in an unnatural position and causing the bees to remove it; and as there was now brood in the upper part of the frames this removed honey could not be stored there, hence must be stored in the sections. This theory looks fine; but when I came to put it in practice I found the bees did not think it just the thing, and colonies so worked accumulated no more in the sections than did others le alone, while at the end of the season the colonies left alone showed a decided advantage, inasmuch as they had honey enough to winter on with little or no honey in those whose frames had been reversed several times. The claim was also made, that the reversing of frames would do away with swarming, as the queens occupying the reversed queen-cells would all die. Many queens in the embryo form would thus die; but as swarms were sure to issue from queens not killed by reversing, or by the swarms coming out without any capped queen-cells or any preparation along the line of queen-cells, the reversing of frames for this purpose proved as fallacious here as for section honey. The only advantage I could ever find in reversing frames was that, by thus doing, the combs would be built as perfectly to the bottom-bar of the frames as to the top-bar, so that the trouble of ridding the frames of bees, on account of their hiding in the space between the bottom-bar and the comb, was obviated. While this was a real gain, yet in my opinion the gain here is not of sufficient amount to pay for the trouble and cost of reversible frames. This can also be accomplished in other ways, such as placing the frames in an upper story and running for extracted honey, or having them filled with early honey for the bees to winter on.

Question.—What is the best way to purify beeswax so as to free it from dirt and give it that nice yellow look we see in some of the foundation sent out? I have a lot of old dirty beeswax and old combs which I wish to reduce to nice yellow wax this winter.

Answer.—If I mistake not, some of our foundation-makers bleach or cleanse their wax by the use of chemicals. Regarding the use of these I know nothing, and I doubt whether the ordinary practical bee-keeper could make it pay to use chemicals for purifying beeswax, even were he familiar with their use. Any plan by which the wax is kept in a liquid state for a long time, the same being perfectly stationary during this time and while cooling, and using quite a body of water with the wax for the dirt to settle into, has a tendency to separate the impurities from the wax, and give it a bright yellow color. If, in addition to the above, a pint of good strong vinegar is used for every ten pounds of wax and one quart of water, the result will be far more satisfactory. My plan is as follows: Put 10 lbs. of wax, one quart of water, and one pint of strong vinegar, nto a flaring tin dish, and set it on the stove ill the wax is melted and the whole become as hot as it will bear without boiling over. If the mpurities are of any size it should now be trained through common cotton cloth, or these mpurities are likely to be partially imbedded n the wax at the bottom of the cake when cold, o as to make the job unsatisfactory. Having his accomplished, spread down two or three hicknesses of old carpet or two or three horse-lankets, where the wax is expected to stay till old; then set the vessel of wax in the middle, nd wrap over the top and sides till well pro-ected from the outside air, so that the whole may be two or three hours in cooling. If you will watch the liquid you have in the vessel efore covering up, you will note that the whole mass seems to be in agitation, rolling and turning about as though it were alive. This is the work of the vinegar, and that which makes the dirt separate more perfectly from the wax than it otherwise would. If strained as given above, there will be only a fine dross at the bottom of the cake when cold, which is easily separated from the wax by scraping with a dull knife. Bro. A. I. Root said in GLEANINGS, some fifteen years ago, after receiving wax of me treated in the above way, that the same was the nicest wax he had ever received up to that time. The above way of cleansing wax did not originate with me, but was given by Quinby in his "Bee-keeping," about 30 years ago.

Heads of Grain, FROM DIFFERENT FIELDS

THOSE STRAWS.

Dr. Miller must have raised a good crop of straw this year—long and short straws, little and big straws, and pointed straws. I am very busy getting ready for Crystal Spring Farm Apiary, where I will welcome all bee-keeping friends at any time after the first of March.

Carpenter, Madison Co., Ill. EDW. SMITH.

BEE-CANDY—A CAUTION.

On page 881 of GLEANINGS for Dec. 1 I notice a valuable article on candy for queen-cages and feeding bees, by Mrs. Jennie Atchley; and as I read it over I was wondering how many of the bee-keeping friends have had trouble in making a candy that was just right; and did it ever occur to them that the sugar might be at fault? I do not remember of ever seeing mention made of it in the journals or text-books, but there is to be found on the market what is known to the trade as powdered XXXX sugar, which is much used for frostings, etc., for cake, and is used without eggs or cooking; and it will set or harden in a very short time, something like plaster of Paris. It is wholly unfit for use in making bee-candy, and I thought perhaps it might not be out of place to mention it at this time, as it is usually sold in place of the common pulverized sugar, which it strongly resembles in looks, but it is not so sweet; and unless the purchaser is posted, and states that it will not answer, usually no mention is made of it by the party selling it. I should probably have been ignorant of its existence myself had I not been engaged in the grocery trade for a number of years, during which time I came across it, and have tried it in my family, etc., but I can not recommend its use as a food or for general purposes. T. J. DUGDALE.

West Galway, N. Y., Dec. 5.

[The candy that we have been using with such success is the very one which you seem to think is not suitable. What we have ordered is XXXX powdered sugar. It has a very different character from the ordinary powdered sugar, and seems to be somewhat lumpish in the barrel, and suggestive of starch. We should like to hear from Mrs. Atchley with regard to the kind she has been using.—ED.

THE RESULT OF STIMULATIVE FEEDING.

We fed our bees most of the summer with sugar and water (half parts), with a little pepsin in each teacupful, and it seemed to have a wonderful effect on them. From six colonies we got 570 lbs. pure clover and sage honey, as follows: 120 lbs., 110, 90, 60, 85, 105, with enough left for winter use. Our friend Mr. Flower, at Ashbourne, who has had bees for years, thought he had a good year, and got only 500 lbs. from 10 colonies. He was amazed at our report, as we live only about 4 miles apart. Can you account for such a big difference in the amount of honey obtained? We think it is due to giving them pepsin in the sugar and water. Do you think that would make them do any better?

Ogontz, Penn., Dec. 5. W. O. JENKS.

[We don't know about the pepsin, but should incline to the opinion that it has no effect.—ED.]

TRADE NOTES
BY EARNEST R. ROOT.

DOVETAILED HIVE INDORSED; SUGGESTIONS AND CRITICISMS; SHALLOW BROOD-CHAMBER, ETC.

As to the "best hive," I suppose there will be differences of opinions just so long as men, conditions, circumstances, and localities differ. But as for myself, let me say, that, for the production of either extracted or comb honey, for adaptability to varying conditions, convenience, simplicity, and cheapness, Dr. Miller or any other man will have a difficult task in finding a better hive than the Dovetailed in some one of its improved forms; especially should one starting a new apiarian outfit weigh well the great advantage found in the fact that this hive is being manufactured along the line of scientific developments; and when we study the history of the past it is wonderful to note how the changes and improvements have been so adjusted that those who used them could keep right along with the advance without pecuniary loss.

In view of what I have said it is certainly with much hesitancy that I make a few suggestions. First, I hope you will hold on to the improved Hoffman frames. That they are superior to those enlarged at the ends, I am sure such a genius as Dr. Miller would soon discover after practical trial. As to the V edge, I care but little. Some colonies fill up the space with propolis, others do not; and as for killing the bees—why, it simply cuts them in two, while the flat edges mash them. The fact is, however, by gently pushing one frame against the other, and withdrawing it once or twice, we may avoid killing any bees with either. I believe there is less propolis generally with the flat edges, especially when the wedge is used behind the division-board, and all keyed up, which I always do.

Now as to the "bee-space" of the Dovetailed hive as manufactured at Medina, I wish it were increased to ⅜, or at least $\frac{5}{16}$ of an inch. My experience has been, more propolis, burr and brace comb, with the less than with the greater space, especially between the top and bottom super when both are in; and between the super and top do we find more propolis than when the space is decidedly $\frac{5}{16}$ or ⅜. The structure of the super as now made is for ¼-in. space; and let me say, Bro. Root, you allow nothing for the smoothing-plane, which I will use, though the boards as they come from the factory are as smooth as any of that class of work ever turned out from any factory in the land, I believe. Well, this very little shaving is taken off the super edges, and now sometimes the sections, when placed in the holders, will not go down, all of them at least, so as to leave a full ¼-inch bee-space; and whenever it is *less*, as, for instance, when a section springs up, *there* you will find propolis. I tacked a strip $\frac{1}{16}$ inch all around a number of supers last season, and, without one exception, I found less propolis. I am forced to the conclusion that bees will put propolis in a space the least fraction under ¼ inch, *certain*. Better, then, construct for $\frac{5}{16}$, and when, unavoidably, we have *less* or *more* by $\frac{1}{16}$, all will be well.

Pardon me now if I seem to grow bolder with my suggestions; but I am growing in love with shallow frames; and, unless I have had a peculiar experience, what is now the dovetailed super, with certain changes, is the coming hive.

Friend Root, let me ask you and Dr. Miller to pay attention to this: Let the factory at Medina make for the coming season some dovetailed supers, increased to full 5 inches in depth; then rabbet out sufficiently to receive the usual tin rabbet. Make, for these, frames of the improved Hoff. style, with top-bar ½ inch thick, and bottom-bar ¼ inch thick, and *same width* of top-bar, or else you will surely have burr-combs. Key up all with the usual follower and wedge. Let the bee-space throughout be $\frac{5}{16}$. Send out a number of these to your customers (free, if you like — I'll take quite a good many at that), and then see what you shall see, and hear what you shall hear. For making nuclei; for queen-rearing; for doubling weak swarms; for adaptability to capacity of queen; for production of either comb or extracted honey, or both; for wintering; for favorable manipulation in brood-rearing in spring, and for economy of time in handling, such a hive offers advantages which those only will ever know who give them a faithful trial. Two or three f them might be used for brood-chamber, acording to capacity of queen. They could be iered up indefinitely for extracted honey, or the upers and frames sent undisturbed to market. nd sold as comb honey, by fitting on a thin ottom and top. This is for our local market, here super and frames could be returned. he usual super for holders and sections could e used for surplus when desired. Should these ve-inch supers prove unsatisfactory as broodhambers, the purchaser could utilize them for xtracting-supers, for which they are far supeior to the deeper frames, or simply strike off ith a plane from the upper edge the extra ¼ ıch, and he would have the super as it now is be used for section comb honey.

How nearly this might infringe upon the patat rights of others, I am not able to say. In oint of arrangement, dimensions, and adjustbility to hives of your own construction, you ould occupy a great vantage ground, especial- toward your own customers, and could afford pay proper and reasonable royalty.

LANGDON NON-SWARMER NOT A FAILURE.

Now one word for the Langdon non-swarm-. It was not altogether a failure with me. he third day after pushing the slide on a coloy I would withdraw it, and push in a slide ith a notch cut near one end, 1½ inches long y ⅜ deep, thus affording ingress and egress to ıe young bees on the side farthest from the now en companion hive. The bees coming out by ıe cone from the hive on which the slide was st pushed, *take the course* by the *third* day, ighting near the tunnel of the non-swarmer, ıd turning immediately into the other hive. he notch in the slide being farthest from the ınnel, they never notice it. Thus, after the ıird day the young bees nearly ready for flight ıd work when the slide was pushed, are reased, and work goes on in both hives until ıe *sixth* day, when the slide is changed. I lost queens, bees, nor larvæ, and made some hon-, though the last was decidedly an "off" sean in this section.

Mr. Editor, stand by your "footnotes."

Glasgow, Ky., Dec. 23. F. G. RAILEY.

[Regarding bee-spaces, the majority of testiony we have received seems to point toward e ¼-inch or scant ¼-inch space as being the st. See what Mr. Kretchmer has to say on is same point in the next column. Two or ree years ago, when the question came up, e ⅜ space was roundly condemned, and $\frac{5}{16}$ as considered about right; but latterly we ıve been asked to reduce it to ¼, because, it as said, it was the least liable of any of the aces to have propolis or burr-combs. We adit that, if the space gets down to ⅛, or that om through which a bee can not pass, propo- will be deposited. But we have intended to ake all our super arrangements so that the space would never get less than $\frac{3}{16}$. However, we are open to conviction; and while we can not remedy those hives already out, we can make right those hives for the future, providing we have enough testimony that will show us, without a doubt, that our present spaces need changing. By following this policy we shall get a trifle nearer, perhaps, to the right thing than we have even yet attained to.

Regarding the shallow-depth brood-chambers or extracting supers, you have, perhaps, noticed on page 900 what we have already advertised. It is 4½ inches deep, because the regular Dovetailed-hive super is that depth, and because it was just exactly half the depth of a regular body. You see, we chose that depth so that the bee-keeper, who has regular Dovetailed-hive bodies, and desires to change to shallow bodies, can do so by simply sawing them transversely through the middle; they should be taken to the nearest planing-mill, where they can be sawed on a buzz-saw more accurately and cheaply. After cutting out a rabbet in each end of one of the halves thus made from the body, the regular half-depth frames will fit.

As you said at the outset of your article, we desire to make all changes or innovations in such a way as to make the least trouble to the bee-keeper, and the least confusion when used in connection with appliances already in use; but the 5-inch depth would be at variance with this policy. After all, how much advantage would there be in adding the ½ inch to the 4½ inches, as you suggest, when so many good points will be lost?

Regarding the brood-frames, we make half-depth Hoffman frames as you suggest; but we think, for extracting purposes, the frames shown at C C, page 900, Dec. 1, would be preferable. These have top-bars ⅜-inch thick and 1$\frac{1}{16}$ inches wide; end-bars ¼ x 1$\frac{1}{16}$; bottom-bars are $\frac{3}{16}$ x ⅜. This gives a clear comb space of 4 inches. The particular advantage of this bottom-bar is that, when the super is turned upside down, the combs can be more readily examined without removing them from their position.—ED.]

THE HOFFMAN FRAME AND ITS CONSTRUCTION.

Friend Root:—After seeing your request for further reports concerning bottom-bars to brood-frames, I looked over considerable correspondence, filed away with other letters containing references on various subjects, and my own use of various forms of frames enables me to make the following report:

The top-bar, when 1$\frac{1}{16}$ inches wide, and from ⅝ to ⅞ inch thick, and correctly spaced 1⅜ inches from center to center, does prevent brace-combs between the frame-tops; and when thus spaced, and the bee-space between frame-tops and the bottom of the super does not exceed ¼ inch, almost no burr-combs are to be found.

As far back as 1864 used frame-tops, which, in their earlier form, were touching each other nearly the entire length; later, only at their ends; but I have entirely discarded that form for frame-tops of equal width throughout their entire length. Frame-tops, wide at the ends, are objectionable because they are more securely propolized at the ends to the back wall of the rabbet which supports them. With the narrow top, even after being in use for several years, and cold weather renders propolis a little harder to break, we can readily loosen a narrow-top frame by placing our screwdriver, or similar tool used in opening hives, on the rabbet, and quickly pry them loose.

The correct spacing is certainly most effectually done by having the upper end of the frame-ends widened to the proper width, while ⅔ or ¾ of the lower portion of said frame-end should not be more than ⅞ inch wide. Now, some objections that have been made to this widened part of the frame-end are, that the shoulder thus formed catches on the next frame already in the hive; but a correspondence on that subject usually led to the fact that said offset or shoulder was almost square, whereas it should be with a beveled slope, which actually assists in guiding the frame into proper position. As to whether one edge should be beveled or both square, my correspondents differ; but the greater number seem to favor the beveled or V'd edge.

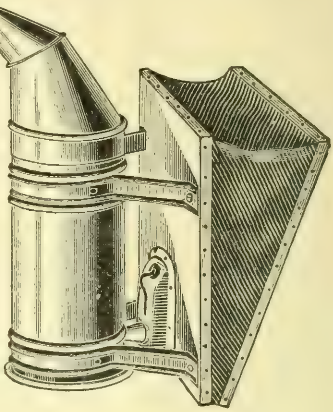
Years ago we made "all-wood" brood-frames, as a matter of simplicity in their manufacture, with bottom-bars ⅜ inch square; and of these we used several hundreds for years; and while the bees would build their comb a little nearer to the bottom, they sometimes would build past the bar, especially after being in use five or more years, and when one side of the comb became more distended than the other side, or when, from some cause, a hive should be tipped a little to one side; but when such frames were used in an upper story for extracted honey they will ruinously build past the bottom-bar and down unto the brood-frame tops; and, even when using them over Hoffman frames, with proper spacing, the combs would be built past. But now we have entirely discarded that width, preferring a frame-bottom not less than ¾ inch wide, and not more than ¼ inch thick. Before making the change, and before we decided what size of bottom-bar would be best, I counseled with numerous extensive bee-keepers, at conventions and by correspondence, and their preference seemed to be for a bottom-bar of the above-named size and shape. E. KRETCHMER.

Red Oak, Iowa, Dec. 23.

[Mr. Kretchmer's article, together with the others that have been received, argue strongly for a wider bottom-bar. A few more such letters will lead us to believe that the change would be desirable.—ED.]

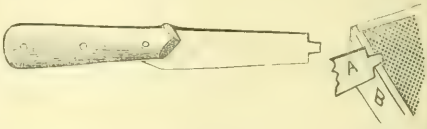
CRANE SMOKER.

After testing the Crane smoker for some months, we found it would be improved by putting in a little spring to assist the special check-valve. We found the spring was necessary to make it respond more quickly. Creosote would sometimes make the hinge work a little hard.



SCRAPING KNIVES FOR SCRAPING SECTIONS.

The engraving below represents a little too that was handed us at the Big Convention ir Chicago, by a bee-keeper whose name we seen to have mislaid. At all events, the engravin will explain the idea. When we saw the implement we were at once convinced it was good thing; but it seems, from one of Dr. Miller's Stray Straws, that he has tried a simila tool, and has not found it to be as good as a ordinary case-knife because the latter wil scrape clear across the surface of the section But, doctor, why couldn't your long case-knif be notched on the end as shown in the engraving, so that you could, when desired, scrap around in the corners? You know the squar corners or shoulders are supposed to preven the point of the knife from gashing up into th comb. They are designed, also, to scrape tw surfaces at once—the perpendicular edge, an the inside edge of the section at right angles t it, both at one sweep of the knife. We hav not tried this implement, but saw it used i scraping a couple of sections. Any case-knif can be ground or filed off so as to make thes notches; and, even if the notches prove to b of no particular value, as Dr. Miller and Mis Wilson seem to think, there is very little expense incurred in notching out the knife; and even if you don't want it, put it on the grindstone and restore the end of its blade "to it former condition."



GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

Whosoever shall exalt himself shall be abased; and he that shall humble himself shall be exalted.—MATT. 23: 12.

FOR some reason or other we are just now having the largest number of orders for renewals to GLEANINGS we ever had—and this in spite of the hard times. As we have not been making any great spread in the way of premiums and other devices to swell our list, we can not conceive why the renewing should be so general unless—well, our extreme modesty forbids our filling out the sentence.

ON page 275, 1893, appeared a clipping from a paper, to the effect that Mr. J. A. Buchanan not only adulterated honey with glucose, but pleaded guilty. In the next issue we published a letter from Mr. Buchanan which showed that he had been made the victim of spite, and at the time we were entirely satisfied that he was innocent. Lately we have been informed that one of his accusers has had to flee from the hands of justice because of some rascality. The record of this person is altogether crooked, while that of Mr. Buchanan has been, so far as we can ascertain, straight and honorable.

DR. MILLER says, in Straws, we should say "quiet robbing to *prevent* robbing," rather than "quiet robbing to *stop* robbing." We borrowed the expression from no less a scholar than friend Hasty, on page 359 of the *Bee-keepers' Review*. Either form may be correct, whichever view you take of it. One time last summer our honey-house door *somehow* got open. Closing the door without giving the bees something else to pounce on to would have been disastrous to small nuclei throughout the apiary. Our stacked-up hives containing a wee entrance at the time were not operating, simply for the reason that bees had used up all he stores in them. We put combs into them, losed up the honey-house door, and the robbers turned their noses immediately toward he stacked-up hives. Here, doctor, was not a ase of *preventing*, but one of *stopping* somehing that was already existing. You know, like cures like;" and, if we admit your view, like prevents like."

EGATIVE AND POSITIVE TESTIMONY ON THE DISCUSSION IN THIS ISSUE.

THE discussion in this issue, as to whether the bees perform any valuable part in the ferilization of blossoms, leans strongly to the side f the bee. Mr. Fultz' article, one of the best we have ever read on the "other side," combats some claims that we do not *think* are made by bee-keepers or by their representative bee-papers; see p. 49; and in the second place, his arguments are based largely on *negative* testimony—that is, proof of something he has *not* seen—while Prof. Cook and the rest rely upon positive facts and positive figures. For instance, if A steals a sheep of B, and C, when placed on the witness-stand, says A did not steal the sheep, because he, C, did not see him do so, the evidence is weak. But if D, when placed on the stand, says he actually saw A carry off one of B's sheep and put it among his own. his testimony would be positive; and the testimony of two such men would convict A of theft in spite of "bushels" of negative testimony. Mr. Fultz says, in effect, that he does not believe that bees fertilize blossoms, because he sees no evidence of it; *but other good witnesses do.*

CANDYING OF HONEY NO PROOF OF PURITY.

WE want to iterate and reiterate again, that the candying of extracted honey is no proof of its purity. Nearly a year ago we adulterated, as stated in another column, for the purpose of experiment, several samples of honey with glucose. Into one we put 25 per cent; into another, 33⅓; another ½, and another ¾. These samples were all put into a close cupboard, together with another sample of pure honey. At this date every one of them is candied; but the candying is less solid, in proportion to the amount of glucose in the honey; and while we think we might be able to recognize the presence of glucose by the peculiar way the honey candies, it is doubtful whether the average bee-keeper or consumer could do so without having made previous experiments with several samples, such as we have. You see, the matter stands this way: If the general public believes that candying is the best proof of purity, the glucose-mixer can show that his samples of glucosed honey (which he will, of course, call strictly pure) will candy; and there was a time, a year or so ago, when bee-keepers would be perfectly satisfied with any sample that showed a tendency to granulate. We desire, therefore, to correct this impression as speedily as possible.

Unfortunately we have several thousand labels (for you know we have quite a business in that line) printed ahead, in which the wording occurs, that "candying is the best proof of purity." Just as soon as these labels can be changed it will be done.

A DISTINGUISHED VISITOR.

WE have just been favored with a visit from Dr. A. Vergel de Dios, of Manilla, Philippine Islands. Mr. D. is a physician and dentist, and has followed that profession in Paris, France, for the last six years, and has also studied at the University of Pennsylvania, for about a year and a half. While at the World's Fair he learned of the existence of the

Home of the Honey-bees, and resolved to pay us a visit. He speaks Spanish as his native tongue, although he belongs to that great division of the human family known as the Malay. He also speaks French perfectly, and a little English. After making a tour through all the different rooms of this establishment he could not express his surprise at the wonderful development of apiculture in this country. Mr. D. is a highly intelligent Christian gentleman, and a living proof of the elevating influence of Christianity and Western civilization. We hope he will always remember his visit here with as much pleasure as we shall always remember him. He says there are no regular hives used in his country, but still he is very desirous of introducing our strains of bees there as well as our hives. He has promised to give us several articles in regard to his country as soon as he returns—its flora, climate, and general features. They will, of course, appear as translations, as he writes in Spanish.

HONEY STATISTICS UNRELIABLE.

WE are often asked for statistics regarding the amount of honey and beeswax annually produced in the United States, and, in some cases, for some particular States. So far as we know, there are none that have ever been made that are at all reliable. Some fair guesses were made; but later developments would seem to indicate that these were very far from being correct. There were a few statistics published a few years ago by the government, but they gave South Carolina the credit of producing the largest amount of honey; but California, by all odds the leader in honey-production, was put at the bottom of the list. Of course, every reader of our journal knows that this is manifestly incorrect.

From the best information we have as honey-buyers, and from correspondence we have had with some of the largest honey-buyers and honey-producers, we would, unhesitatingly, place California far in the lead as a producer of honey. Just what State should rank next is a little hard to say; but those in the front ranks will be New York, Pennsylvania, Wisconsin, Texas, Illinois, Arizona, Colorado, Missouri, Kansas—well, we can not go further, because we should have to guess at the others. Michigan used to rank among the best, but lately its crops have been very meager. Our own State of Ohio has never made any very great show, principally because it is too agricultural.

ADULTERATING HONEY.

FOR a month or so back we have received several letters to the effect that Mr. F. H. Hunt, of Redlands, Cal., has been adulterating honey with glucose. General Manager Newman, of the Bee-keepers' Union, to whom the matter has been referred, has also received some correspondence to the same effect, and says, in the *American Bee Journal*, that, if this Mr. Hunt is the same one who lived at Center Point, Ia., he is at his old tricks again; and then he refers to pages 424, 475, 492, 563, and 724 of the *American Bee Journal* for 1884. Not wishing to do Mr. Hunt any injustice, we have been careful to weigh all the evidence. We have written him twice for his side, and, although he has had plenty of time, he makes no reply.

It is alleged that Mr. Hunt brought a carload of honey from California, and mixed with it a carload of "stuff," which he obtained from the East, in St. Paul, Minn. Here is a little of the evidence:

J. Gehring, being duly sworn, says that, in the middle or latter part of September, 1893, he took his little steam-boiler, and helped Mr. Hunt mix together, and put into tin cans and Mason pint jars, what he, Mr. Hunt, called honey and glucose. This affidavit is dated St. Paul, Jan. 4, 1894, and bears the seal of the Supreme Court of the State of Minnesota.

J. C. Acklin, being duly sworn, says that, i the middle or latter part of September, 1893, h was in where Mr. F. H. Hunt, of Redlands Cal., was mixing honey with some stuff tha came to St. Paul in barrels unmarked, an which Mr. Hunt said was glucose; that h Acklin, saw the honey and stuff mixed togethe and put into tin cans. He got a sample of th "stuff" from one of the barrels while it w being emptied, and now has it in his possessio This affidavit also bears the seal of Minnesot and is dated at St. Paul, Jan. 4, 1894.

The following is a report from the Sta Dairy and Food Commissioner of that Stat relative to that matter:

[Copy.]

INSPECTOR'S MISCELLANEOUS CAR

STATE DAIRY AND FOOD COMMISSION.

No. of Sample, 18.
Date of Purchase, Dec. 17, 1893.
Character of Sample, strained honey.
Stored with Smith & Austrian.
City or Town, St. Paul, Minn.
Manufacturer, F. H. Hunt, Redlands, Cal.
Inspectors, J. M. Bohrer and E. B. Williams.

HONEY ANALYSIS.

Dec. 29, 189

Polarization direct, +85.5; normal at 20° C.
Correction, 4.4
89.9

Polarization indirect at 20 $^{m}_{c}$, 39.9
Correction, 4.4
44.3

Sucrose, 1.00 %.
Reducing sugar, 57.10
Ash, .76. Dextrine present.
Remarks.—At least 75 per cent glucose.
Chemist.—E. N. Eaton.

Comment on the above by us is unnecess

It is sufficient to say, that we have n our possession the affidavits and the report, also bearing the seal of Minnesota, together with a lot of other correspondence to the same effect, from various parties. The General Manager of the Union, and also the Food Commissioners of Minnesota, have the matter in hand, and no doubt they will make things a little interesting —for somebody.

SIMPLE METHODS OF DETECTING GLUCOSE IN HONEY.

ON page 810 of the *American Bee Journal* for Dec. 28 is an inquiry from a subscriber asking whether there is any simple way of testing extracted honey to find out whether it is mixed with any thing besides honey. The writer hen goes on to say that he saw an item in a ocal paper, to the effect that glucose could be recognized in honey by the use of alcohol. In reply, the editor says he does not know of any easy way that such tests can be made, and, moreover, doubts whether there are any reliable simple tests. However, he sent the recipe o one of the veteran bee-keepers, who, after ntroducing four times the bulk of alcohol into a certain quantity of *honey of known purity*, and shaking it thoroughly, as directed, says:

"The only result that I can see is, that the *alcohol* looks a little milky. The honey all stays at the bottom. According to that test, I have never produced a pound of pure honey in ny life."

The italics in the quotation above are ours, and we shall refer to it further on.

On page 103 of GLEANINGS for Feb. 1, 1893, it will be remembered that we spoke of a test that was made at a Michigan State bee-keepers' convention, by Prof. Cook, who himself introduced varying quantities of glucose into some samples of pure extracted honey. No one but himself knew the proportions. A testing committee was appointed, to see how nearly they could determine the relative amount of glucose n each by the *taste*. The report shows that he committee, while unable to give the exact proportions of honey and glucose, detected the "doctored" samples unerringly, and were close enough to say that one sample contained more han another. The report of this appeared on page 50, Vol. XXXI., of the *American Bee Journal*.

Wishing at the time to disprove or corroborate, as the case might be, this experiment, we told our apiarist to adulterate several samples of pure honey, each sample to have a different proportion of glucose. The samples were numbered, and he only was to know the proportions. The writer and Mr. W. P. Root, our stenographer, were the testing committee; and, as we reported at the time on page 103, we were able to detect each glucosed sample, without a single mistake; and not only that, we gave very correctly the comparative amounts of glucose in each sample. The point we wished to make was, that glucose could be readily detected by the taste; that no experienced honey-buyer should be deceived in the goods he was buying.

On page 255 of our issue for April 1 appeared an extract from the *Bienen-Vater*, which told how to detect various adulterations in honey. Among them was a simple recipe for detecting glucose by alcohol in extracted honey. It is as follows:

> Take a tablespoonful of honey to be tested; pour it into a small bottle, and then add three spoonfuls of pure spirit, and shake the whole together thoroughly. In about a quarter of an hour there will form in the bottle a cloudy, whitish sediment; and from this one may be sure the honey is adulterated.

On page 275 of the same issue, April 1, we related having tested samples of glucosed honey; and the result was, we detected every doctored sample.

"Now," we quote, "to make sure the test was reliable, we also procured a sample of basswood honey that we knew to be pure. . . . . On putting the honey to the test, the alcohol had no perceptible influence on it, and the *honey* remained as clear and limpid as before."

Observe the italics we put in this time. You will notice at the outset, that "Veteran Bee-keeper," who made the test for the *American Bee Journal*, says that the only result that he could see was that the *alcohol* looked a little milky. When the test is correctly made, as given in the quotation from the *Bienen-Vater*, glucosed samples will show that the *honey*, when glucosed, is perceptibly cloudy according to the amount of adulterant. On samples of pure honey, the alcohol has no effect, but rises to the top, and looks a little milky, just as "Veteran Bee-keeper" says; but this is no evidence that the honey is impure. He did not go far enough in his experiments, because he tried only *pure* honey. Had he also tried several samples of *glucosed* honey he would have soon noted a marked difference.

We do not call attention to these matters by way of correction, to find fault with that excellent bee-periodical, the *American Bee Journal*. We simply desire to show that their "Veteran Bee-keeper" did not make the test *sufficiently thorough*, and that he did not read the result correctly. In the second place, if there are simple and reliable tests for detecting glucose in honey, we must not let the impression get abroad among the would-be adulterators that there are no such tests, because they will use it as a screen. In fact, we have known them to say that they could adulterate if they wanted to, for there were no means of detecting the adulteration. They are mistaken. If they knew that there are simple tests by which we can follow them up and make it *hot* for them, they will be a little cautious before they attempt such a business.

OURSELVES AND OUR NEIGHBORS

BY A. I. ROOT.

Blessed are the meek, for they shall inherit the earth.—MATT. 5:5.

PLEASANT SURPRISES.

Perhaps some of the friends may think my subject inopportune at this crisis of financial affairs, when so many are out of employment, a good many in want, and a general disposition to say that farming does not pay; when those who ought to be able to advise, recommend that the unemployed turn to agriculture and our broad acres, rather than do nothing and see their families suffer. In fact, I have feared that some might suggest that we have plenty of surprises, without question, but that they are mostly of another kind rather than pleasant surprises. But notwithstanding all these drawbacks, I do believe we may so live that this world of ours shall have in store for us pleasant surprises every now and then. In one sense we may look for them. In another sense, we should attend to business, attend to duty, and *not* look for them. If we were looking for them all the time they wouldn't be "surprises," you know. I *do* believe that the meek shall inherit the earth; but the tendency of Young America nowadays is too much like this: Somebody has worked a while, and done pretty well. Then he turns around and says, "Now, look here. I have been meek a long while, but I have not inherited the earth, nor hardly even the smallest part of it." The trouble is, we are looking too much toward the reward, and we are working for the reward; and, if I understand it, this is not meekness at all; and the same way with these pleasant surprises that I am sure a Christian will find if he does not get weary in well-doing. In the first place, we must not *expect* too much. We want to look out for the idea embodied in the expression, "The world *owes* me a living." It is a bad doctrine. We want to start out with the idea that the world does not owe us any thing; and we want to encourage more, I am sure, the thought that the world generally *pays* what it owes. Sometimes this great busy world is a little slow and a little dull in recognizing what it owes; but I have sometimes had a pleasant surprise in finding the great busy world a little *too* ready to pay what it owes—or more than it owes. I have seen intemperate men reform, and start out to do well; and I have sometimes felt sad to think that this great busy world, or at least a small part of it, had made a blunder in making too *much* of the reformed man. Perhaps the world discovered the blunder; and can we blame the people if they said to themselves, "Now, look here; when another man starts out, or *says* he has started out to lead a new life, I guess we had better wait a while, and see how well he holds out before we begin throwing favors in his way, and putting grave responsibilities upon his shoulders"? So if we decide in the outset that the world, generally speaking, will recognize us for all we are worth, in due time, I think we have made a good start. Blessed are the meek, for they shall inherit the earth.

One must not expect too much of the world if he is going to start out for pleasant surprises. He must not demand too much of his good wife; he must not demand too much of his children; he must not demand too much of his neighbors; of the hired man; or of his employer; of the teacher; of the minister. You see, if he starts out demanding or expecting every one to come fully up to *his* standard of things, he will be continually disappointed. His surprises will be *un*pleasant ones instead of pleasant. He must be meek and quiet, and cool and gentle. I do not by any means mean he should not be a pusher—God forbid! He can be a veritable "hustler," and still be meek. Please do not get the idea, dear friends, that I think I am this myself, for I know I am nothing near it; yet I have glimpses occasionally of the wonderful things that may be done in that direction. I have told you how I generally get such glimpses. I plead vehemently for something I think ought to be done. Perhaps it is in my power to have it done instantly, if I use my authority, and demand that it be done. I do not like to do this. It is not well. A meek man should be very careful indeed about saying this *shall* or *shall not* be so. Well, after I have pleaded pleasantly but vehemently, and have met only opposition, a good many times I settle down sadly, and perhaps sorrowfully, feeling that I am right, and that it is hard to meet objections when I am laboring only for the good of those in question. A good many times I decide that about the only thing that can be done is to pray for the stubborn one, and ask God's help; then afterward, when I find the person or persons, as it may be, have changed entirely, and go to work with cheerfulness and alacrity for the very thing I urged, *then* I have my pleasant surprises. You may say that, if I believe in prayer, there should be no surprises at all. But look here, my friend. When I pray that certain things may be brought about, I do not always feel sure that it is the *best* thing. *God* knows, but *I* do not; therefore, when I discover that the great God above has recognized my convictions as good and true ones, I have a double surprise—first, because the thing I wanted te see done has already been done; secondly, because it seems as if God *indorsed* my course. And by the way, dear friends, I wonder whether you have yet discovered that the quickest way of succeeding, oftentimes, with stubborn people, is to stop arguing or pleading entirely, and plead with the great God above.

One who would keep himself in favorable condition for pleasant surprises should be careful about being in debt. Let me digress a little. Last summer the Weather Bureau was severely censured because it predicted rain, and rain did not come. I imagine, after this these government officials got to be a little more careful, for toward the close of our drouth they worded their telegrams a little differently. Instead of saying so positively that it *would* rain on such a day, the telegram would read, "The conditions will be *favorable* for rain on Thursday afternoon." I sometimes wish the *flag* that they furnish, to run up on the top of our water-tower, had something printed on it to the effect that the *conditions* are favorable, instead of saying squarely, rain is coming. Well, now, it is so with these pleasant surprises. Nothing in this world will bring them about positively, that I know of; or, perhaps I should say, at any specific time. We can so live, however, that the conditions are *exceedingly favorable* for happy surprises. Well, what are these conditions? First, meekness, according to our text. Sometimes, however, we meet a *kind of* meekness that is exceedingly provoking. We have a man up in our jail just now who came along as a tramp. He went into a house, and, finding nobody at home except a girl of fifteen, demanded that she instantly set to work to get him a good square meal. Then he asked a blessing over it, and, I think, repeated some Bible texts. Before he left he managed to steal a watch. When I remonstrated with him about his inconsistency he repeated the text, "Judge not, that ye be not judged." I told him, however, that there are times when it is our duty to judge, and I made him assent to it. He then, with great meekness, quoted another Bible text—"Let him that stole, steal no more;" and he said it very sweetly and pleasantly. Lest some of our unbelieving friends, however, should want to stand up right here and tell me that this fellow was a fair sample of our good Christians, I think I had better make haste to tell you that the fellow had escaped from an asylum, and is going to be sent back as soon as we can find where he belongs. We do not want any such meekness as this; and I am really afraid that our crazy friend in jail is not the only one who has made sad blunders along that line. Such people are not in condition for pleasant surprises. I do not think his was a pleasant one when the sheriff laid his hand on the fellow's shoulder; neither will yours be, my friend, if you depart from reason and common sense. Let us now go back to the matter of being in debt. If you are owing that which you ought to pay, and are unable to pay, you are in great danger of meeting surprises; and I am pretty sure they will not be *pleasant* ones. A good many will say, "But I could not help being in debt. If I tell you the circumstances, I am sure you will say there was no other way to do."

There *may* be circumstances, I am well aware, when one can not avoid running in debt—in fact, where he would be doing very wrong indeed if he did not get help from his friends; but there are ever so many more cases where people think they must go in debt where they need not do so. Oh how hard it is for the world to learn that it is *not* so *very* hard to make your expenses come inside of your income! Our parents away back did it—not so very far back, either, for some of us can well remember the time when mother made starch from potato-parngs, and twisted up strips of paper to save buyng matches; blew out the candles when nobody was reading; put in just wood enough to warm the one stove in the house until all went to bed, and practiced economy in a line with he above, clear through the whole household. Why, I can remember when people did not have any money at all from one month till the next. They generally scraped up enough to pay taxes, and that was about all. Everybody else had to ake something they had to sell, or they went and worked it out. I am sure it would not hurt he United States of America a bit just now to explore a little in that direction. It is like a good many other things. When you first undertake it, you think you can not stand it; but by and by, after you have tried it a while, you mile to think of what a fuss you made of it at rst. I think I could let half a dozen bees light on my hand, and sting their very worst, ne after another, and I do not think I should make a very wry face. Now, do not say I am oasting, for I have no more grit to endure pain han other people—hardly as much. I used to make an awful fuss about a bee-sting; but it was only after I had "learned the trade" that discovered I could let them sting, if necessary, nd go right on with my work. Now, when we learn to make expenses come inside of the income, even though it hurts like letting the bees o on stinging, then we are getting down to a ort of bedrock where pleasant surprises are kely to await us every day; and it does not urt us very bad either, if we get a little adusted to the new order of things.

Now a word about depriving ourselves in orer to keep out of debt. When I was 16 years d my clothes were quite shabby, and I had no oney to buy better ones. Somebody suggested hat I might go and get better ones, and pay for hem when I got the money. The man at the othing-store knew my father, and he was kind enough to let me have the clothes, charging them up to me without even asking my father to back me. You see, my father had a reputation for promptness that made his 16-year-old *boy* good, even though the father was not consulted. I wore the clothes until *they* were rather shabby, without paying a copper on them. Then some other kind friend suggested to me that it was a bad way for a boy to get into, wearing his clothes out before they were paid for. At that age I was quite ready to listen to anybody. So I went before night and made arrangements in the way of a sort of trade to have my account crossed off. Now, in all these years since that time no one has ever asked me for the money I owed him, without having his pay, or some satisfactory arrangement made, inside of 24 hours.

There have been times when I have "scrimped myself," as the expression goes, worse than to go hungry in order to keep my reputation good; but I tell you it was a good investment to do so. I learned self-control, and to put up with privations, especially in the way of food, by a sort of accident — at least, I call it that. For four years, while in my teens, I was a vegetarian. I learned by force of will to sit down even at a thanksgiving dinner and eat nothing but vegetable food. The memory and experience of those four years have made it comparatively easy all through life to go without different things when my better judgment told me I could not afford it; and this very thing has helped to give me happy surprises. Many times, after I have cheerfully consented to forego or give up something I greatly desired, I have had pleasant surprises in finding the very thing I coveted placed right where I could get it easily, or, perhaps I had better say, *honestly*. People are tempted to be dishonest because they want a thing terribly bad, that they *can not* have honestly. Well, when one decides that he is going to have something, no matter whether he gets it honestly or dishonestly—he is going to have it any way—then good-by to happy surprises. He hardly need expect them any more. I have told you many times how I have longed for a glass of beer. If I could sit down at a table with friends, and drink all the lager beer I wanted, just as the crowds were doing at the World's Fair, I am afraid I should be foolish enough to give quite a sum of money—that is, if I could do it *honestly*. If I could not do it honestly, then I don't want it. A young friend of mine united with one of the churches in our town, not many years ago. I knew what his life had been; and when I took him by the hand and told him how glad I felt to hear the good news, it was really one of my pleasant surprises. I felt afraid, however, he did not realize what he had been doing, and feared he had united with the church on the impulse of the moment. I do not think he had any idea of the Bible, and perhaps but little of Christianity in general. He knew this, however, that, if he were going to be a Christian, he would have to stop drinking beer. He united with the church some time in the spring. Somebody told me he said, a few days before the Fourth of July, he was going to have all the beer he could drink on the Fourth of July, religion or no religion. As soon as I heard it, however, it occurred to me that, but for the grace of God, there was a picture of A. I. Root exactly. How naturally self would prompt me to make just such a speech, and, worse still, put it into execution! My friends, if you know nothing of the appetite for beer, you *do* know, doubtless, of the terrible longing that comes at times after other things that are sinful. Some one may ask, "Well, could not the boy be a Christian and have his beer on the Fourth of July?"

Let me ask *you* a question: Could a boy be a Christian and get drunk on the Fourth of July—or *any other day?* I do not think I have ever found anybody, unless he was intoxicated, who had the hardihood to say a man can be a Christian, and at the same time deliberately get intoxicated. By the way, why is it that all intemperate men, and especially all drunken men, are so vehemently bitter in their curses and denunciations of every thing pertaining to the Bible, or even God as the ruler of the universe? It is because God and the Bible suggest self-control, and fighting against sin.

Now, then, if you are going to have the "conditions favorable" for pleasant surprises, you must have a *clear conscience.* Perhaps there is no happy surprise in one's whole life of experience, like the thrill that comes over us when we see our children doing well. I met a man the other day whose face was so beaming with happiness and good nature that it surprised me. When I ask him what it meant he said, "John has finally come out a Christian, and is going to unite with the church at the next communion."

I replied, "Well, that is good news. So you finally succeeded in getting him past his stumbling-blocks. did you?"

"No, I didn't have any thing to do with it—or, at least, it seems as if I didn't. After I gave up talking with him about it, he announced of his own accord that he had come out for once and for all on the side of Christianity."

This was indeed a pleasant surprise. But the father *did* have something to do with it, even if he did not know it. He is a good square Christian man; and by the way, my friend, if you wish to have the conditions favorable for pleasant surprises in regard to your children, *be careful.* Not only must you be careful before them, but be careful when they are not anywhere in your sight. Be careful in the darkness of the night, when no soul is near. You may say, "I would not have my boy know this for all the world; but there is no possibility of his ever finding it out." You are wrong. You are making a *fearful* blunder. Every dishonest or impure act stamps itself all over the man. It stamps itself on your looks, on your acts, and on your mind; and your looks and your actions and your mind are molding and fashioning the lives of your children—especially your boys. I have been told that some temperance lecturers give excellent temperance addresses, and do a great amount of good, while they are, right along, drinking on the sly. It is not true; it is a foul slander on humanity and on God. It is true, a bad man may read the Bible to an audience; and the words that he reads or the texts he quotes may do some good; but when the man's real life comes out it is a question whether the damage he has done does not far overbalance all the good ever accomplished. There can be no real pleasant surprises in the life of a hypocrite. It is the honest man—the conscientious man—who is going to get the most happiness here in this world of ours; and he will, after the end of things earthly, inherit all things. One more point: It is the people who have learned to put up with little; who have learned to live within their incomes; who have learned to be happy and contented where the great masses would growl and complain, who meet with pleasant surprises. If you are contented to-day, and satisfied with what God has seen fit to give you, you are in the very best possible condition, or, in other words, the conditions are favorable (as the Weather Bureau puts it) for many pleasant surprises—yes, for showers of happy surprises, providing said "showers" do not make you proud and arrogant and overbearing, and touchy and snappish, toward your neighbors.

And, finally, after the surprises of this life are *all* ended, the great King of all the earth shall say unto the meek and humble and faithful, "Come, ye blessed of my Father, inherit the kingdom prepared for you from the foundation of the world." We are told in that beautiful figure in the 25th of Matthew, that, when this invitation was made, they to whom it was made were surprised; and when the Lord told them of the good acts they had been performing all through life, they could not remember it. Then he goes into detail, and tells them this wonderful truth—that, when they fed the hungry, gave drink to the thirsty, clothed the naked, etc., they were really doing it unto *him,* and that it was all put down in a book of remembrance; and he closes with these wonderful words:

> Verily I say unto you, Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me.

HIGH PRESSURE GARDENING

WATER FOR IRRIGATION, FROM UNDERDRAINS, ETC.

If you are so fortunate as to own land located on a higher level than ground you are using for market-garden crops, fruit, etc., you may count yourself as very lucky; and, in fact, almost every land-owner has some land that is higher that others. I will now tell you what you can do. I have frequently spoken to you of our swamp garden; but it never was my own by clear title until last spring. Then, by the death of the owner, I found I would have to vacate it or else pay $500 for a single acre in a piece of land that would hardly sell for $50 an acre. Besides that, the acre I wanted was mostly a sort of frog-pond that the average farmer would hardly take as a gift. Rather than give it up, however, I paid the $500. It was during the hard times too, and mother and the boys felt as if I were almost throwing the money away when I did it. I had a plan in view, however. Just as soon as the ground was all my own I cut underdrains every 20 feet apart, and led them all into a sort of cistern constructed at the lowest point in the center By the way, Prof. Wright, the celebrated Oberlin geologist, told me, some years ago, that this swamp of mine, almost on the summit of quite an elevation, was, in all probability, made by being the resting-place of a huge glacier, ages ago. This glacier was so heavy that it sank into the ground as the waters subsided; and through ages and ages, leaves, sticks, etc., have collected in the cavity, blown in by the wind, until peat was formed, and then rank vegetation assisted in filling the cavity with vegetable matter. In digging out our cistern we found great trunks of trees, several feet below the surface of the swamp.

Well, after my underdraining was completed we started a line of 3-inch tile straight in the direction of our steam-boilers, about a thousand feet distant. As the cistern always contains water, I directed the boys, during our drouth last summer, to lay this last line of tile just under the surface of the water that flowed from the cistern and followed along in the ditch as fast as they dug it. This water following them lubricated their ditching-spades, and rendered the hard clay comparatively soft when otherwise it would have been tremendously hard digging. You see, this line of tile, therefore, was carried on almost a dead level. It dropped just a little, because the water in the cistern was constantly falling very slowly as they let it off into the ditch. In order to go through the highest land, they had to cut in some places four or five feet deep. This line of tile was carried through a neighbor's land until I reached my own ground again not far from the big windmill. When on the corner of my lot I made another small cistern by setting in the ground (on end) two lengths of 18-inch sewer-pipe. The tile from the swamp emptied into this sewer-pipe about a foot above the bottom. On the opposite side of the sewer-pipe, and 6 inches lower, a 3-inch *iron* pipe with a strainer over the end was put in. This was the outlet. With old discarded boiler-flues that had been accumulating for years, I piped this water clear down to our steam-boilers, and obtained head enough so it would deliver the water into an iron tank located just above the boilers. Well, for two months past, the water from the swamp garden has furnished our boilers, using from 100 to 200 barrels per day. When I explain to you that heretofore we have been pumping water from Champion Brook, 700 feet away, and about 18 feet *below* the boilers, you can understand something what a saving my swamp speculation is making. Another thing, the water from our wells is so hard that it destroys our boiler-flues in a comparatively short period of time. The water from Champion Brook is quite a little better; but still a scale, more or less, is always forming on the flues. The water from the swamp proves to be almost pure soft water; and the saving in flues will pay a big interest on the whole investment. Besides this there is a great saving of coal that was formerly used in pumping water from Champion Brook. The boys and all the rest of the family are, of course, thoroughly converted *now* to the wisdom of my speculation in the swamp. Another thing, I have got thorough control of the water, so I can make it stand at any depth I wish for my celery, onions, or other crops.

Do you want to know what there is to help you in this? Why, it shows you that, with a reservoir to catch the water from your underdrains located higher up, you may have a nice little home-made waterworks, and often get fall enough to cary the water into your barn, stables, and perhaps all through your house, without very much expense either. Where you want to carry the water on a dead level through impervious clay soil, common tiles will do almost as well as any thing. When, however, the fall commences, in order to get a pressure or head on your waterworks you will be compelled to use iron pipe. Old discarded flues or second-hand pipes will often answer an excellent purpose for many years. My flues were all dipped in liquid asphaltum after they were all fitted ready to put together. The consequence is, the water looks and tastes like pure spring water. The underdraining will probably be a good investment any way; and having nice water all over your premises, without any pumping, is a *tremendously* good investment for any home.

A NEW SORT OF CRESS FOR WINTER USE.

Among some of the seed we sowed in the greenhouse last winter, three or four stalks of nasturtiums sprang up. As it seemed a rank grower, and was rather pretty, I let them run; and when the greenhouse was closed up at the approach of winter (almost a year later), there were the plants still growing. When the sash were put on, it seemed to take on new life; and I told the boys to tie up some of the tender green shoots and let them run. To my surprise the plant acted as if it might occupy the whole greenhouse by sending out long slender vines and tendrils; and it seemed as if some of them grew two or three inches in a night. The short days, and the rich compost together, produced a rank growth of light color, something like a potato-shoot growing in the dark. As these tendrils got in my way, I got a fashion of snapping them off and putting them into my mouth. Finally, when they were encroaching on the lettuce I directed one of the boys to trim off a lot of that exuberant foliage. Just as I started away a thought struck me, and I said: "Look here, Frank, take those shoots into the lunch-room and tell them to cut them up and serve them for dinner, with pepper, salt, and vinegar." Everybody who got a taste of it, I guess, wanted more; and one of the boarders asked me afterward where I got water-cress in the month of January. Now, then, if sturtion shoots and leaves would sell for the price of lettuce, or even a little less, what a picnic we shall have in growing it for the markets! After the idea was suggested to me I thought it had a taste remarkably like water-cress. Acting on the suggestion, I had all the little sturtion-plants picked up from among the lettuce, and set in rows by themselves; and who knows but I shall develop a new industry in the way of winter salads? By the way, did any of you ever before hear of serving up sturtions as a table dish?

HEELING IN STRAWBERRIES, RASPBERRIES, ETC., IN EARLY WINTER, TO BE PLANTED OUT IN THE SPRING.

Mr. Root:—Will you please give me your opinion and experience on taking up strawberry and raspberry plants *now* and heeling them in to be set out in spring? I want to move in spring, and take plants with me. I have pulled some and put them in a pit, but I should like to hear from you before I pull more.

J. E. HENDERSON.

Valley Grove, W. Va., Dec. 19.

[Friend H., I have had no very great experience in this line; but what I have had is against it. While I have at times succeeded in giving the plants as good a place to winter as where they grew originally, most of the time I have failed. They would either be too warm or too cold; or if put into a pit, very likely too damp. In your case I would get the privilege of removing the stuff in the spring. I know that nurserymen recommend this way of doing, and practice it to a great extent; but I shall never buy any more stuff of a nurseryman, if I can help it, that he has wintered over in the cellar so that he can get at it early in the spring. Last spring a firm sent out tremendous advertisements, and gave photographs of great crowds of men putting up trees and plants to ship. These people talked so much about their extra facilities for keeping plants during winter in their nice cellars that I gave them a trial order. We got gooseberries, blackberries, currants, and other hardy plants that are usually almost sure to grow. The shippers were liberal enough to throw in quite a lot of extras; but not half of the plants ever made any start to grow; and they were so feeble, those that did start, I am afraid that scarcely a thing got growth enough during the whole season so as to be ready to take hold and grow next spring.]

TRANSPLANTING-TUBES — A CHEAP WAY OF GETTING THEM.

In towns of only a few thousand inhabitants they often have to hire a team to draw off empty fruit-cans, and dump them, perhaps, down some bank or in some unfrequented place. Not long ago I saw a place where these tin cans had been dumped by the cartload, so that the owner of the land, when he saw what had been done, placed a notice which said, "$5.00 fine for throwing cans or any other rubbish on these premises." Now, in order to get all we want while they are clean, and before they get rusty, just go to these places (restaurants, etc.), and ask them to save them for you. Leave an empty barrel to put them in as they may accumulate, also ask them to keep them where they will keep dry, so they won't rust. To fix them for use, take a can-opener and cut out one end of the can, leaving a little around the upper edge in order that it may be strong enough so that you can place your foot on it to force it into the ground. The other end you will have to deal with differently. If you have a cook-stove in your back shed or shop you are ready to take off the other end. Heat up the stove and set on a number of the cans, and the solder will melt at once. As you take the cans off the stove, hit them a little rap with the back of a bread-knife, or other suitable article, and off goes the other end. One end of the can is sharp, and the other strong enough so you can place your foot on it.

I spoke of the stove being in a back shed or shop, for the reason that there will be a little of the fruit left in the cans; and if you were to take them into the kitchen, of course an unpleasant odor would arise. You can, if more convenient, take a large griddle, or any iron with a flat surface, and place it on three bricks, outdoors; and with a fire under it you can accomplish the work where it will not trouble any one. W. S. WRIGHT.

Battle Creek, Mich., Dec. 21.

[Very good, friend W. Your suggestion of leaving a ring of metal around the top, to prevent crushing, will, perhaps, make the fruit-cans sufficiently substantial. I have used them; and my objection was, that all the fruit-cans I ever got hold of were made of tin too thin and light. Your improvement would fix the top all right; but if your ground has stones or sticks in it, I fear the lower edge will get badly mashed up in a short time. We make ours of the heaviest tin the tinners can work; but even then we have a good deal of trouble by having it bent and bruised where they strike stones, or where the ground is very hard.] A. I. R.

EXPERIENCE WITH THE NEW CELERY CULTURE.

We have had quite a little experience with the new method of growing celery, and found that it was a good plan to make a small beginning; for no one seems to be able to comprehend the amount of water that it requires. As our patch was right about a good well at the barn, we put in a rotary pump and watered frequently with an engine; but at one end of the patch the water ran into it from a leaky watering-trough, keeping the ground soaked up all the time. If it had not been for this we should not have known the possibilities of the plan, as the celery was wonderful in this spot, and I should say the most profitable thing on the place. While with good watering the crop was fair, it was not nearly what it should have been, and did not blanch up as nicely as that banked. The requirements seem to be to keep it growing right along, having the ground immensely rich, and not stopping the watering because it may have rained, but put on ever so much more, until the ground is all soaked up, and then in a few days put it on just as heavy again, and keep it right up till the celery is ready to market. It will grow in a wonderfully short time; and if one has plenty of water there need be no failure about it at all, and it will surely be a big success if that and the manure are attended to. Even where the celery was only fairly good, we sold at 10 cts. a bunch, putting three in a bunch, sometimes four. This is at the rate of over $3000 for the crop of an acre. We wished we had all celery for a while; but then, it would have needed to be better than this was, or we could not have sold so much of it.

CHRISTIAN WECKESSER.

Sanborn, N. Y., Dec. 6.

NOTES OF TRAVEL

BY A. I. ROOT.

ON THE WHEEL.

On the evening of Thursday, Jan. 11, it was my pleasure to deliver to the Endeavor Society of Sharon Center, this county, substantially the address in Our Homes for this issue. After my talk I passed the night with a friend who lives on one of the highest hills in Medina Co. As business is pressing now at the Home of the Honey-bees, I begged the privilege of getting up at the first glimpse of dawn, for a six-mile tramp to my home before breakfast. The roads were rather rough to use the wheel, but I had a curiosity to see how I could stand such a tramp since my lungs and muscles have been so well developed by my wheel-riding. I made it easily, and could have tramped back again, I think, without breakfast or without very much fatigue; and I did and do thank God from the bottom of my heart for health, good stout lungs, and, and hardened muscles. But what has this to do with the wheel? Just this: I left my wheel the night before at the depot, half a mile from home. During my walk I had made tests of walking as an exercise compared with wheeling. I walked as rapidly as I could, and then I ran quite a little distance to test my wind; but I did not find the exhilaration that is produced by the wheel. In that last half-mile with the *wheel*, however, and especially in going up hill, I was surprised to notice how quickly the exercise on the wheel brought the long breaths that distend my lungs to their utmost, and with this large lung extension came the strength and exhilaration. I confess I do not understand it. But this seems to be clear: When you are lifted from your feet, and are not obliged to sustain the weight of your body, a set of muscles are brought into play, or a different condition of things takes place, that permits great lung expansion without the fatigue that would result were one obliged to support the weight of the body.

STANDARD TIME.

At present writing, only two criticisms have been received in regard to my article in our last issue, and both of these refer to a blunder of mine. I mentioned a family that were obliged to stay over all day Saturday and all day Sunday because of the confusion resulting from having two kinds of time. I saw them at our depot, and listened while they talked with the agent, and explained to him their loss and disappointment. But I did not at the time notice that, had they taken sun time instead of railroad time, they would have been *ahead* of the train instead of *behind* it. I asked the agent to explain; but all he could tell was that they missed their train because of the confusion resulting from having two kinds of time. Very likely it occurred in this way: Somebody told them that the train left at 9 o'clock, which was true by *sun* time, but they came to the depot to take their train at 9 o'clock *railroad* time. The agent told me the two kinds of time made confusion continually every day, week in and week out. That is true in our business. The two kinds of time can not but result in confusion. The railroads can not adopt sun time, so called—everybody assents to this; therefore the only way in which one kind of time can be brought about is by adopting standard time, or, in other words, conforming to the spirit of the law that has been made.

KIND WORDS FROM OUR CUSTOMERS.

Of course I want GLEANINGS continued right along, "footnotes" and all. I indorse all that Dr. Miller said about footnotes, and think with him that GLEANINGS is "just perfect.

Bedford, N. Y., Jan. 1. MISS P. E. MILLS.

We received the sewing-machine all solid and sound. It works all right. It is a nice one too. I can not see why any one could object, after receiving one, unless he expected to get a little steam-engine with humanity in it to run it and do the sewing. WM. H. WEISER.

York, Pa.

SOME KIND WORDS FROM FRANCE, FOR THE A B C BOOK.

"It never rains but it pours" is no less true of kind words than of misfortunes; at least, such seems to have been our good fortune during the last month. In Stray Straws for Oct. 1 Dr. Miller made reference to an opinion expressed by our esteemed French cotemporary, *Le Rucher* (The Apiary) concerning our A B C book. A day or so afterward he sent us the whole extract. In English it reads as follows:

"We are happy to be able to avail ourselves of the space remaining in this department to acknowledge the receipt of an important book which was gratuitously sent us by the author, and concerning which we have for a long time promised to say something. It is nothing more nor less than the A B C of Bee Culture, universally known by bee-keepers, written by Mr. A. I. Root, the very friendly and obliging editor of GLEANINGS IN BEE CULTURE, which has furnished us more than once the necessary foundation for an article. We have never seen a book so beautiful and so complete on apiculture. The pictures are numerous—so numerous that we have not wished to count them, and they are, for the most part, reproductions in photo-engraving. The plan adopted by the author is very happy. It is the alphabetical arrangement of all the articles; 400 pages of faultless presswork, treating, so as to speak, on every case which can occur in apicultural experience; a description of the implements which have been most nearly perfected, and the latest inventions; the manner of making hives, sections, etc. Such is this book, which, in its entirety, has no equal. It winds up with a biography, with half-tone pictures of the most eminent bee-men, and of photographic views of several important apiaries. Our heartiest thanks are due to our confrere Mr. Root."

A BARGAIN. 25 extra fine S. C. Brown Leghorn cocks for sale at $1.00 each. These birds have been raised the past seaseon from choice stock. Satisfaction guaranteed.
Reference, A. I. Root.
LEININGER BROS., Ft. Jennings, O.

FOR GREGG RASPBERRY TIPS, Snyder blackberry sets, and Berry baskets and crates, address
21fdb H. H. AULTFATHER, Minerva, O.

ZINC AND LEAD ORE
Specimen. Fifty cents by mail.
M. GARDNER, Smithfield, Jasper Co., Mo.

THE CHOICEST
—OF—
TESTED QUEENS.

Ready to mail in the early spring at $1.00 each. Exclusive attention given to queen-breeding. Have furnished Northern queen-dealers for years. Send in your orders early, and have your choice of the Golden Italians, or the Imported stock. Safe arrival and satisfaction guaranteed.

J. W. K. SHAW & CO., Loreauville, La.
Money orders, New Iberia.

MONEY IN SMALL FRUIT. Send Postal Card to me and get my prices for plants of all the leading varieties of Strawberries, Raspberries, Blackberries, Currants, and Grapes, with directions for planting, etc. I pack plants carefully, and guarantee them to reach you in good shape. My plants are grown on rich soil, and dug fresh from the ground when shipped.
Address **EZRA G. SMITH,**
MANCHESTER, ONTARIO CO., N. Y.
☞In responding to this advertisement mention GLEANINGS.

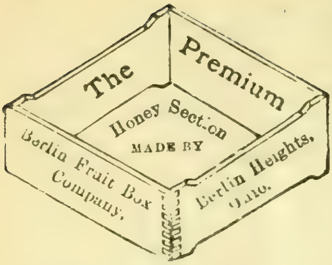
Seeds for Business.

While we believe we have in stock a full line of Vegetable Seeds which are *as good* and *as cheap* as can be procured anywhere, we have two items in particular to which we wish to call special attention, knowing that they will prove ***World-beaters as MONEY-MAKERS; namely, Tillinghast's P. S. Early Jersey Wakefield Cabbage***, and ***Tillinghast's P. S. Prizetaker Onion.*** Both are ***thoroughbreds***, correct in every feature, and the latter unequaled for use by the new method of transplanting. These seeds are ***worth*** a dollar an ounce; but to induce every gardener to test them we will deliver both of them anywhere at 5c per pkt., 25 c per oz., or $2.50 per pound.

A New C. O. D. Plan.

Believing that the general lack of currency, together with the trouble, risk, and expense of mailing remittances, deters many would-be customers from sending early orders, we have perfected a plan by which we will deliver whatever seeds you want to your postmaster, who will deliver them to you and return the money at our expense. Make out your order for any standard varieties at prices offered by any reliable dealer, and we will mail them C. O. D., as above. Catalogue free on application. Address
Tillinghast's C. O. D. Seedstore,
LaPlume, Lack'a Co., Pa.
☞In responding to this advertisement mention GLEANINGS

DOVETAILED HIVES, SIMPLICITY HIVES,
SECTIONS, EXTRACTORS, ETC.
FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb
J. M. JENKINS, WETUMPKA, ALABAMA.
☞In responding to this advertisement mention GLEANINGS.



Send for our new price list of Bee supplies and Fruit packages A liberal discount allowed on winter orders. Address
BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.
1-10d

Automatic Comb Foundation Mills. **Made by W. C. Pelham, Maysville, - Ky.**

Here's the Place

To get *early* Golden Queens. Send for circular and prices.
J. B. CASE,
Port Orange, Fla.

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

DO YOU RAISE

Fruits?

Flowers?

Vegetables?

Do you own Land?

IF SO, IT WILL

PAY YOU WELL To take a paper that gives its entire attention to gardening, home grounds, the lawn, tree and shrub planting, fruit, flower and vegetable raising, and thus secure the invaluable help, and the best information given in the clearest manner, so that the veriest novice can thoroughly understand.

OUR INQUIRY DEPARTMENT (a Free Bureau of Information) open to all subscribers.

AMERICAN GARDENING

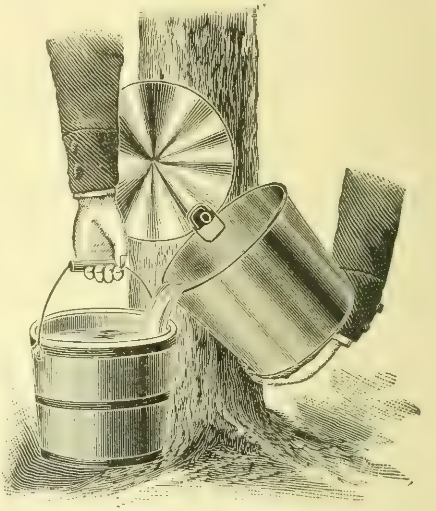
(FULLY ILLUSTRATED)

TELLS ALL THIS And more. It has a staff of specialists in all the branches of horticulture, devoted to its service, and it is impossible for any one interested to consult its pages without gathering knowledge ten-fold worth its cost. **$1.00 a year for 24 numbers.** Sample copy free. Address

AMERICAN GARDENING, 170 Fulton St., N.Y.

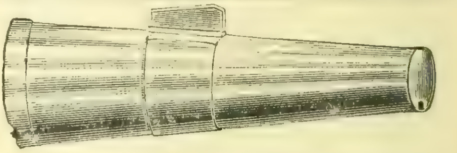
Maple-Sugar Supplies.

The time is at hand when those who produce the delicious sweets from the sugar maple must be getting ready. For the best results you must have good clean apparatus of the most approved type, and you really can not afford not to read Prof. Cook's book, "Maple Sugar and the Sugar-bush," which we furnish at 35c, or we will give a copy free to all those who buy sugar-makers' supplies of us to the amount of $10.00 or more. We do not sell evaporators, but we think we can do you some good on spouts, pails, covers, and cans. We have received a carload of these from the factory, and they are made of American tin-plate. The plates are tinned and made up into cans by the same firm; and by taking a carload we get them at bottom prices. See table below. The pails and cans are machine-made, far superior to hand-made, and guaranteed not to leak.



BUCKET WITH HINGED TIN COVER.

This cut shows the manner of hanging the bucket on the spout, and also the manner of emptying with the hinged tin cover. Most progressive sugar-makers nowadays use covers of some kind.



RECORD SAP SPOUT.

This spout is cheaper than any other made, and we believe it is as good as any, if not better. It is used almost exclusively in this section.

PRICE LIST OF PAILS, COVERS, SPILES, ETC.

	IC tin.	IX tin.
10-quart bright tin buckets, per 100	$15 00	$17 00
12 " " " " "	16 00	18 00
15 " " " " "	18 00	21 00
Patent hinged tin covers, per 100	$6 00	
Wood Reversible covers, per 100	4 50	
Record say-spouts, per 100	$1 00	1000 for $8 00
1-gal. sq. cans "	11 00	
1 " " " 6 in a box, per box	$ 90	10 boxes $ 8 50
1 " " " 10 in a box, per box	1 40	" " 13 00
5 " " " not boxed, each	3	100 26 00
5 " " " 2 in a box, per box	75	10 for 7 00
5 " " " 1 in a box, per box	45	10 for 4 20

A. I. ROOT, MEDINA, OHIO.

$5.50 For 3, or $10.00 for 6, Finest Brown Leghorns, or Plymouth Rocks. Other varieties. Circular free. Address Geer Bros., St. Marys, Mo., or H. B. Geer, Nashville, Tenn. 5tfdb

HONEY COLUMN.

CITY MARKETS.

ST. LOUIS.—*Honey.*—The market has undergone very little change since the holidays. Hand-to-mouth selling is the ruling one, yet we quote comb 10@14; extracted, 4¼@4½. Prime beeswax, 23½@24.

D. G. TUTT GROCER CO.,
Jan. 19. St. Louis, Mo.

KANSAS CITY.—*Honey.*—Demand only fair; good supply. One-lb. amber, 13; 1-lb. white, 15; dark, 11. Extracted, white, 7; amber, 6; dark, 5 Beeswax, 22@25.

HAMBLIN & BEARSS,
Jan. 19. Kansas City, Mo.

ALBANY.—*Honey.*—Comb honey continues to sell very slowly at 10@13c. There is an improvement in the demand for extracted, but the market is well supplied and prices are low. We quote: Light, 6½@7; dark, 5½@6.

CHAS. MCCULLOCH & CO.,
Jan. 20. 393, 395, 397 Broadway, Albany, N. Y.

CHICAGO.—*Honey.*—The demand for honey is very small; in fact, the trade is almost at a standstill. The fine weather that we are having may in part account for this, but we are of the opinion that people are refusing to buy very much along what is considered the luxury line. We still get 15c for fancy white comb when sales are made, and 10@12c for the darker grades. Extracted ranges at from 5 to 6 and 7, according to the flavor, quality, and color. Beeswax quiet at 22c.

R. A. BURNETT & CO.,
Jan. 18. 161 So. Water St., Chicago, Ill.

CHICAGO.—*Honey.*—The ruling price for fancy white comb honey seems to be 13c. Other grades of comb sell for 10@12c. Extracted is selling at 6c. Hard times cause restricted demand.

S. T. FISH & CO.,
Jan. 8. 189 South Water St., Chicago, Ill.

BUFFALO.—*Honey.*—The market is very quiet. Liberal stock on hand, moving very slowly. Fancy white, 13@14; choice, 11@12; No. 2, 9@10. Dull times having great effect on honey; very little moving.

BATTERSON & CO.,
Jan. 18. Buffalo, N. Y.

CINCINNATI.—*Honey.*—Demand is slow; supply plentiful. We quote extracted honey at 5@8; comb honey, 12@15 for best white. Demand is fair for beeswax. Supply good. We quote 20@23c for good to choice yellow.

CHAS. F. MUTH & SON,
Jan. .8. Cincinnati, Ohio.

BOSTON.—*Honey.*—Honey is selling fairly well, Fancy 1-lb. comb selling at 14@15. Extracted, 5@7.

Jan. 19. BLAKE & RIPLEY,
Boston, Mass.

KANSAS CITY.—*Honey.*—The demand for comb and extracted honey continues light, but shows signs of improvement. We quote No. 1 white 1-lb. comb at 14@15; No. 2, 12@13; No 1 amber, 13@14; No. 2, 10@12. Extracted, 5@7. Beeswax, 20@22. 20@22.

CLEMONS, MASON & CO.,
Jan. 19. Kansas City, Mo.

DETROIT.—*Honey.*—Sales are equal to receipts, and prices are unchanged. Best white comb, 15c; other grades as low as 12½. Extracted, 7@8. Beeswax, 23@24.

M. H. HUNT,
Jan. 16. Bell Branch, Mich.

SAN FRANCISCO.—*Honey.*—Honey is in better demand, and we quote light amber at 5c and white at 5½c. One-lb. frame comb honey, 9@10c, according to quality. Beeswax, 24@26c.

SCHACHT, LEMCKE & STEINER,
Jan. 13. San Francisco, Cal.

MILWAUKEE.—*Honey.*—The trade in honey here is small, and sales drag heavily. Indications are that only a favored few are consuming honey. Unless an improved demand comes the supply is quite liberal. Will presume to quote white 1-lb. sections, in good order, 14@15; broken, or common quality, nominal, 10@12; white extracted, in bbls. or kegs, 7@8; dark or amber, nominal, 5@6. Beeswax, 20@23.

A. V. BISHOP,
Jan. 18. Milwaukee, Wis.

NEW YORK.—*Honey.*—We have nothing new to report. Trade remains dull with plenty of stock of both comb and extracted on the market. Beeswax sells on arrival at 26@27c.

HILDRETH BROS. & SEGELKEN,
Jan. 24. 28 & 30 West Broadway, New York.

ALBANY.—*Honey.*—Honey market is in a very dull condition, with a large stock of both comb and extracted. Quotations would be only nominal, for we do not miss a sale for any respectable offer now.

H. R. WRIGHT,
Jan. 12. 326, 328, 330 Broadway, Albany, N. Y.

CLEVELAND.—*Honey.*—No material change in the honey market since our last report. No. 1 is selling at 14c. Receipts light. Beeswax, 30c.

WILLIAMS BROS.,
Jan. 23. 80 & 82 Broadway, Cleveland, O.

FOR SALE.—Two cans of extracted honey, about 70 lbs. each, very fine clover. C. A. VAN HOESEN,
Westville, Montcalm Co., Mich.

FOR SALE.—2000 lbs. of fine comb honey, in 1-lb. sections, 24-lb. cases, and 2000 lbs. of clover and basswood honey, in 60-lb. square jacket cans. Sample of extracted honey by mail on application.
EZRA BAER, Dixon, Illinois.

Extracted Honey

In 60-lb. cans, at 6c per lb.; the product of either Utah or California.

S. T. FISH & CO.,
189 S. Water St.,
Chicago, Ill.

$5.50 For 3, or $10.00 for 6. Finest Brown Leghorns, or Plymouth Rocks. Other varieties. Circular free. Address GEER BROS., St. Marys, Mo., or H. B. GEER, Nashville, Tenn. 5tfdb

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb and Prompt.

Queens? Yes, either 3 or 5 banded bees; Queens and supplies. Pure-bred Poultry cheap.
Catalogue free. *CHAS. H. THIES,*
Steeleville, Ill.

Ever=Bearing
Gault Raspberry.

Owing to the unexpected demand, my original stock of these plants was nearly all sold. In order to supply the demand I paid down $100.00 in cash and one dozen plants to be released from the contract to supply one of my first customers, who had ordered 2000 plants. These I will now offer at $1.00 per plant, or $10.00 per dozen, until sold. Descriptive circulars will be sent upon application to

W. C. GAULT,
Ruggles, - - - - Ohio.
Ashland County.

☞In responding to this advertisement mention GLEANINGS.

Like Every Editor,

I wish to increase the circulation of my journal. If every bee-keeper in this country were thoroughly acquainted with the REVIEW, my subscription list would at once be greatly increased. I have in mind a scheme for bringing about this acquaintance. Of some issues of the REVIEW I have as many as 300 copies; of others, 200; of others, 100; and so on down to less than a dozen. Now, if you will allow *me* to pick them out, I will sell these back numbers at two cents a copy. Send me any amount up to $1.00, and I will send you half as many copies as you send me cents, and no two copies alike. Remember that back numbers of the REVIEW are somewhat different from the back numbers of some journals—that each number is, to a certain extent, a little book or pamphlet containing the views of leading bee-keepers upon some special topic. Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON, FLINT, MICH.

Doolittle's Queen-Rearing Free.

We have some of G. M. Doolittle's "Scientific Queen-Rearing" books (170 pages) in paper covers, a copy of which we will mail **FREE** to the new subscriber who sends us $1.00 for the **Weekly "AMERICAN BEE JOURNAL"** for one year. This same book in cloth binding sells for $1.00, but we give to a New Subscriber one of the paper-bound edition for **nothing.** Order quick, if you want one. They will all soon be gone. A sample copy of the "Bee Journal" is sent free on application to the publishers.

Address, **GEO. W. YORK & CO., 56 Fifth Ave., CHICAGO, ILL.**

☞ *To New Subscribers—6 months with Doolittle's book, for 75c; or the Bee Journal alone for 3 months for 20c.*

AT THE WORLD'S FAIR THE PORTER BEE ESCAPE received the ONLY award given an escape. Practical bee-keepers everywhere use and recommend it as a great labor-saving implement, and as the best. Circular and testimonials free. Prices:—Each, postpaid, with directions, 20 cts.; per doz., $2.25, *and your money back, if not satisfied.* Order from your dealer, or if more convenient from the manufacturers, **R. & E. C. PORTER, LEWISTOWN, ILL.**

13 Carloads of Supplies.

This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially

FOR THE WEST.

Joseph Nysewander, Des Moines, Ia.

Root's Goods at Root's Prices.

We have the best shipping-facilities in the Northwest. We can save time and freight by shipping direct on some 40 or more railroads, without change of cars, which saves handling, and goods are much less liable to be broken or smashed.

Root's 1893 No. 1 white sections, 4¼x4¼x7 to foot, 1⅞, and $1\frac{15}{16}$, at $2.50 per 1000. No. 1 cream, 4¼x¼x1⅞ and $1\frac{15}{16}$, $2.00 per 1000.

Write for price list and what you want.

H. G. Acklin, 1024 Mississippi St.,
St. Paul, Minn.

Northwestern Agent for A. I. Root's Bee-keepers' Supplies.

Crossman

Will be located near Dallas, where he will be ready with those

Beautiful Golden Queens

in due time for the season of 1894. Send for Price List. Ready February 1st.

W. P. Crossman, Dallas, Texas.
Box 141.

Queens, Nuclei, Colonies } **Send for Price List.** Address **S. D. McLEAN, Columbia, Tenn.** } **1894**

Sections, Bee-Hives, and other Bee-Keepers' Appliances at Bed-rock Prices.

Best of Goods at Lowest Prices.

Write for free, illustrated catalogue and Price List.

G. B. Lewis Co., Watertown, Wis.

Walter S. Pouder,
162 Massachusetts Ave.,
Indianapolis, Indiana.

Supplies, Standard goods; popular prices; Catalogue free.

"Busy Bees," a book telling how to manage them, 10c in stamps; or, free to those sending names of five bee-keepers.

☞ In responding to this advertisement mention GLEANINGS.

BEES **QUEENS**

Smokers, Sections, Comb Foundation, And all Apiairan Supplies cheap. Send for FREE atalogue.

E. T. FLANAGAN, Belleville, Ill.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT.

$1.00 PER YEAR. MEDINA OHIO

Vol. XXII. FEB. 1, 1894. No. 3.

STRAY STRAWS
FROM DR. C. C. MILLER.

AT THE IOWA CONVENTION, 1⅝ inches seemed the favorite width for sections.

YORK'S "STINGER" says Jake Smith can spell better than I can. The spiteful thing!

BUTTER AND HONEY shall he eat, that he may know to refuse the evil, and choose the good.—ISA. 7:15.

THIS WINTER, so far, is one of extremes. The coldest I ever knew at the first end, and extremely warm for the past few weeks.

QUINCE JELLY made with honey, of exquisite flavor, is one of the delicacies mentioned as on exhibition at a French bee-keepers' convention.

BROTHER ABBOTT, of Saint Joseph, says it's all a mistake about sweet-clover honey being dark. No finer honey in the United States.—*A. B. J.*

"DO BEES ever swarm without having built queen-cells previously?" is a question asked in *A. B. J.* The 25 witnesses don't agree in their testimony.

LAST GLEANINGS might be called a special number on Bees vs. Fruit Culture. Might send a small boy with a copy to the esteemed editor of *Rural New-Yorker.*

GALLUP occupies 1½ pages of *A. B. J.* with a glowing description of Orange Co., Cal., and the wicked printer heads it, "By Dr. E. Gullup." But Gallup would't *gull* any one.

IF FORMIC ACID, as now seems settled, comes through the blood of the bee into the honey, shall not some of us have to change our notions about feeding for winter, and feed more slowly?

GLEANINGS is getting to be so prompt about appearing on time that it reminds one of the old times when it was after all the other journals with a sharp stick when they were a day late.

MEMBERS of bee-keepers' societies enjoy special advantages in Europe. They get bee-journals at reduced rates, or free, and in one of the journals I saw an invitation for manufacturers to send in notice of the rebate they would allow members on purchases.

"THE REAL SOURCE of formic acid in honey," at which I have already hinted, is given in an able article by Dr. Planta, and nicely translated for *A. B. J.* by Frank Benton. Exit Rev. Clarke's "drop by drop from the point of the sting" theory.

THE SPECIAL FLAVOR, very agreeable but hard to define, found in butter on the breakfast tables of English hotels, as well as of some Swiss hotels patronized by the English, is, according to the *Bourgogne Agricole*, due to the presence of honey in the butter.

I ALWAYS HATE to see any one try to have the last word. Now, I wouldn't do a thing of that kind; but I merely rise to inquire, anent that third paragraph on p. 61, whether it was the stacked-up hives or closing the door that stopped the robbing in the honey-house.*

NOW THAT REV. CLARKE'S "drop by drop" theory is exploded, will some one demonstrate that a sting can't be used for a trowel? Or why can't Bro. Clarke be candid enough to arise and explain that there never was any basis except a vivid imagination for the "sting-trowel theory"?

WHILE BREAKING OFF from the habit of chewing tobacco, Dr. Trask advises that the patient take a chew of coarsely powdered gentian root, about equal to the ordinary quid of tobacco, after each meal. Within a few weeks the cure will be complete if the patient has strictly abstained from tobacco during that time.—*Medical World.*

BEES' EYES, according to Tony Kellen, in *Lux. Bienen - Zeitung*, do not accommodate themselves to a weak light nor to a dazzling one. Bees thrown in the air at dusk, a short distance from their hives, circle around in the air, and finally fall to the ground without finding their homes, while the dazzling light on the snow has much the same effect.

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* Both, doctor. The stacked hives eased things up.—ED.

W. A. PRYAL (*A. B. J.*) thinks that the great fatality attending the mailing of queens to California results from the candy becoming too dry as it enters that sunny clime, and that there should be a return to the old plan of little water-bottles. Confectioners make a candy dry outside and soft in the middle. How would that do for California shipments?

ROBBERS. Boil for a few minutes a handful of tobacco or cigar-stumps in a gill of water, and you have a not costly chemical product that will put to route, like enchantment, an army of robbers. Apply a few daubs of it at the points where robbers try to enter, and they are totally driven away for a long time, when the application must be renewed.—*L'Apiculteur.*

FOUL BROOD. Dr. Wm. R. Howard (*A. B. J.*) claims to have proved that "the queen does deposit eggs in cells containing the dark, coffee-colored dried mass" of foul brood; that honey is also stored in such cells, and sometimes capped, and that stores and bacilli live in such honey indefinitely. That's not according to Cheshire, perhaps, but it's according to the belief of most practical bee-keepers.

HONEY IN BUTTER, as mentioned in another Straw, an ounce to the pound, has a twofold purpose: To improve the flavor, and to prevent the butter from becoming rancid. If an ounce of honey were sold in this country for every pound of first-class butter, there would be quite a boom in the honey-market. Is there a dairyman in our ranks to try the thing, and report his judgment as to the effect of honey in butter?

THAT NOTCHED scraping-knife, on p. 60. It seems, Ernest, that I didn't make clear what my chief objection was. It was, that it took too long time to set that notch at the right place to work—somewhat in the same way it takes too much time to set loose hanging frames at the right distance. But a half-hour's trial will convince you better than an hour's argument. And just you try that notch at the end of a long springy blade!

GENERAL CORRESPONDENCE

MANUM IN THE APIARY.

INTERESTING EXPERIMENTS IN QUEEN-REARING; MANUM'S NUCLEUS-CHAMBER.

By A. E. Manum.

"Here we are, Mr. Daggett, at the Williams yard, and here I have a horse-shed connected with the honey-house, as you see, with double door to the honey-house, so that I can back my wagon into the honey-house when necessary; and, by closing the doors, I can load my honey without fear of robber-bees."

"What work have you got to do here to-day, Manum?"

"Just about the same that I had yesterday at the Meach yard, with the addition of looking over a few of my experiment hives, which I will leave for the last thing before we return home; and since you are acquainted with Judge Williams—I suppose I should give him the title of 'President,' since he is President of the State Humane Society—you might make him a call of an hour or more."

"Manum, I guess you are going to have a call."

"Yes, I think so. That is Mr. Cox, who has an apiary four miles north from here. How do you do, Mr. Cox? You seem to be in a hurry."

"Yes, Manum, I am somewhat, though I have left my 12-year-old boy to hive the bees should any swarm while I am away. I have come over to borrow a foundation-fastener, if you have an extra one you can spare."

"Oh, yes! I have one right here that you can have as well as not. Are your bees doing pretty well?"

"Yes; the past two days have been favorable, and all are at work in sections; and as basswood promises a full bloom I wish to get more sections ready," says Mr. Cox.

"Are you *sure* basswood will give a full bloom this year, Mr. Cox? I am not so sure of it. I have seen but a few trees, it is true; but those I have examined promise only a partial bloom. I find no buds except at the top of the trees and at the very tips of the branches; and I have come to the conclusion that we shall get only about a third of a full bloom. It may be, however, that, in some localities, they will bloom more fully. It is well enough to be ready, however; but at the same time I would advise you not to get too many sections ready when the basswoods promise so sparingly. I have been caught so many times that I have learned to be very careful unless there is a prospect that we shall get a full bloom."

"What is the matter with that colony? and why do you shake the bees off the combs in front of their hive?"

"Well, I will tell you. Twelve days ago I gave them a virgin queen, and I opened them to see if she was laying, and I find they are queenless."

"Well, but you did not look for any eggs. How can you tell that they are queenless?"

"By their actions, and the mournful hum I hear. Do you see they are not clustered in any particular place in the hive? They are in all parts of it, and appear very much in trouble. Doubtless their queen was lost in mating, and I will now give them another if I can find one in my queen-nursery that has just hatched, as they will be more apt to accept a queen just emerged from the cell than one three or four days old. Yes, here is one just cutting her way out. I will assist her."

"Manum, why don't you introduce the cell and let her hatch in the hive? That is the way I have done several times. I first melt a little wax on my hot smoker-tube, and seal over the end of the cell and cause her to gnaw her way out again."

"Mr. Cox, I dare not do that way. I used to do so, but I now prefer to allow the young queen to hatch, that I may see her full form before introducing her; because I often find young queens without wings or with imperfect wings, while some of them are small, inferior queens, even from large cells; and, furthermore, I am particular as to the form of my queens more than I am about the color. I want strong robust-looking queens. I don't like long, slim, peaked queens, as I have an idea that the workers from such long slim queens are not as large, as a rule, as those from broader, thicker, stouter queens. I look to my queens for a honey crop more than to any thing else about the apiary."

"Manum, I want to know why you shook those bees in front of the hive. You did not tell me."

"Oh! excuse me. I switched off on to another track, and lost sight of your question entirely. I will now show you. Here is the virgin queen, which I will drop among the bees that are now running into their hive at a lively rate. You see she is as lively as you please, and they pay no attention to her. I shook the bees out for this purpose, to draw their attention, as it were, to one purpose—that of getting back into their hive as soon as possible; and upon returning they find they have a queen with them which they accept as readily at this stage as they did the first queen given them, and which is now lost. I find this much the safest plan after a colony has lost one queen. Had I dropped a queen three or four days old into their hive without disturbing them, as I did by shaking them on the ground, they might have balled her—in fact, two out of five would be balled; hence this precaution in my out-apiaries. where I visit them only once a week."

"Well, there, Manum, it is 11 o'clock, and I must hurry home."

"Now, Mr. Daggett, you have returned just in time. as I am now ready to open up my new-style nuclei. You will observe this hive is "tiered up," or, rather, the cap to the outside case is raised four inches, resting upon four blocks, one at each corner. This is to allow the bees and young queens to fly out of the upper story, and still have a covering over them to protect the inner hive from the sun and storms. There, this upper story is simply a shallow brood-chamber, half the depth of my ordinary chambers, and the same size otherwise. I have a perforated zinc bottom to it, to prevent the old and young queens from passing either up or down. This upper story is placed over a full colony which has an extracting-super over it; hence this super is between the main brood-chamber and the nucleus-chamber. There is, therefore, no hindrance to the storing of honey on account of having this nucleus-chamber on the hive. This nucleus, or queen-rearing chamber, has three partitions making four apartments. Each apartment holds three frames, and is a nucleus of itself, with its own entrance, or outlet, where the bees can fly out under the cap of the hive as above stated; and by having the entrances each on a different side, there is no confusion of the bees, as you see each end apartment has an entrance, one on the north side, the other on the south, and one of the center apartments has its entrance on the west, and the other on the east sides.

"But, Manum, if you take bees from some other colony for these apartments, will they not quarrel with the main colony below, since they can mingle together by passing through this zinc bottom? I can readily see that the warmth from the main colony below is very serviceable in assisting the few bees in these small apartments in keeping up a proper temperature cold nights."

"There is no quarreling, Mr. Daggett, for the very reason that I do not bring bees here from other colonies. I simply make use of the bees belonging to this main colony; and here is where is the gain. I do not have to rob any colony of bees to start my nuclei, by this plan, as the bees from below readily come up and occupy the combs; and to make sure of this I aim to have a little brood in each apartment; and as nearly all the bees that take possession of these small apartments are young, I have no difficulty in making them accept a virgin queen, or, at least, I have succeeded in nearly every trial. While I expect some failures, the gain in the saving of bees for queen-rearing, as well as the even and proper temperature given from below, will more than offset the few failūres I may have in introducing virgin queens into these small upper apartments for the purpose of having them fertilized."

"Are you sure that this perforated zinc will prevent the virgin queens from passing down below?"

"No, I am not sure; in fact, some, I feel sure, have done that trick; but as there is another zinc under the extracting-super, they are less liable to get down into the brood-chamber where the old queen is."

"There is another point, Manum, which I wish to bring up in regard to swarming. Will not these virgin queens which are directly over the main colony where the workers have access to either apartment cause undue swarming?"

"I think not, as there is quite a space between these small apartments and the main brood-chamber, which space is occupied by ample surplus room, and there are four entrances above for any of the bees that wish to fly out. Right here I will add that I am not sure but that, if we should have entrances to all of our hives near or at the top, as well as *large* entrances at the bottom, we should be the better able to control or prevent swarming. We will now go to another hive where I am trying to prevent the swarming fever."

Bristol, Vt.

SWEET CLOVER AS A FORAGE AND HONEY PLANT.

A VALUABLE ARTICLE.

By H. R. Boardman.

I am surprised that any bee-keeper of experience, who has had a reasonable opportunity of observing, should report sweet clover any thing less than a first-class honey-plant; and yet I am aware that there are a few adverse reports coming from very reliable sources.

I am quite sure—yes, I think I know from my own experience and observations with this plant, extending through a period of a dozen years or more—that it is unsurpassed, and equaled only by the noted alfalfa; and these convictions are supported by the opinions of some of the most practical and reliable bee-men of my acquaintance.

The last season was the first for several years when white clover alone yielded me any surplus, and this, too, with the fields white with its bloom in every direction as far as bees could fly; and yet I should not be warranted in claiming that white clover was not a good honey-plant. It has a world-wide reputation that is unimpeachable. If it were no more abundant than its cousin it would hardly have gained this enviable reputation—certainly not in the last few years.

I think it has been generally conceded by practical bee-keepers that it will not pay to plant for honey alone. This conclusion is undoubtedly a safe one. We must, then, look for some other value besides that of honey, in order to recommend sweet clover as a field crop.

AS A FORAGE PLANT.

I once supposed, as most people do now, that sweet clover was entirely worthless as a forage-plant for stock—that nothing would eat it; but I have demonstrated to my own entire satisfaction that horses, cattle, and sheep, will not only learn to eat it, but will thrive upon it, both as pasture and dried as hay, and that hogs are fond of it in the green state. I say, they *learn* to eat it, because most stock have to acquire a taste for it, not taking readily to it at first. I gave it a fair trial for pasture last summer. My horses and family cow fed upon it almost entirely during the dry part of the season. They became fat and sleek, without the help of grain or other feed. The milk and butter from the cow showed no objectionable flavor. The amount of feed furnished was something surprising. It has a habit of continually throwing out or renewing its foliage and its bloom; also, when cut or fed back, it keeps it constantly fresh. After gaining a growth of four or five feet in height in dense masses in my pasture it was fed down entirely, even the coarse stalks, so that, at the close of the season, nothing was left. The seeding was, of course, destroyed; but in my desire to put to a severe test the feed value of the crop, this was lost sight of.

Sweet clover, like the alfalfa, sends its great roots deep down into the hardest, dryest soils, thus enabling it to withstand severe drouths as no other plant can. This gives it great value as a fertilizer; and growing as it does upon the hardest, poorest soils, it recommends itself for reclaiming soils too poor for raising other crops. It has a habit of taking possession of vacant lots and roadsides, which has caused some alarm with those unacquainted with its habits, fearing it would spread over the fields and prove a pest. I can assure you it will do no such thing. In all my acquaintance with it I have never seen it spread into cultivated or occupied fields to any extent. I have been very reckless with the seed about my own premises; and if there had been any danger in this direction I should have found it out long ago.

Some time during the latter part of last summer I made a trip through a part of the State where a severe drouth was prevailing. The cattle and sheep looked gaunt and hungry, and were roaming over pastures that were dry, scorched, and dead. Fire had run over the farms here and there, adding still farther to the look of desolation. In places the cows had been turned into the growing corn, the only green forage in sight. I wondered again and again how it was possible for the stock to escape entire starvation. A field of sweet clover, with its dark-green foliage, would have made a refreshing picture amidst this desolation. It would have been more than a picture. It would have supplied a place where it would have been most heartily welcome and appreciated in this trying emergency. I think it will recommend itself and come to be appreciated soon in such times of severe drouth. It makes a slender growth the first year. It is this crop that is the most valuable for hay, and cutting it will not interfere with the second year's growth. The second year it grows coarser; blossoms, seeds, and dies root and branch. If cut for hay in the second year it should be cut just as it is beginning to bloom. A second crop may be cut late in the season. It should be well dried, and it requires good weather to do it in. If cut for seed it may be thrashed and hulled with a machine like red clover, or the seed may be sown without hulling.

Now, don't be induced, by the bright picture

I have drawn, to seed your whole farm to sweet clover, for it would result in an unprofitable failure, I am sure. But if you desire to test its value, do it on a small scale, with an acre or two, and do it thoroughly. I have found it no easy thing to succeed in making it grow as a field crop, and I would advise sparing no pains in getting it started. When once it gets possession of the ground it will stay if allowed to ripen a late crop of seed. Sow with winter wheat or rye in the spring, the same as other clover. Please don't write me for seed. I have none to spare.

East Townsend, O., Jan. 7.

DOES ALSIKE CLOVER PAY?

WILL GROW ON SOD LAND; A SUBSTITUTE FOR BASSWOOD, NOW BEING RAPIDLY CUT OFF.

By M. M. Baldridge.

Under date of Dec. 24, 1893, a correspondent in Hamilton Co., Neb., writes me in substance, in regard to alsike clover, as follows:

> *Mr. Baldridge:*—I have now grown alsike clover about six years. At present I have about 80 acres of it, but I expect to plow it up the coming spring. The dry weather of the past year has about used it up. I cut the past season some 70 acres of alsike for seed, but the drouth was so severe upon it that I got only 55 bushels. One year I cut 63 acres of alsike for seed, and got an average of 4 bushels per acre. I shipped the seed to Chicago, and it netted me $8.15 per bushel. Last fall I plowed up 80 acres of alsike and seeded the land to wheat. The land, owing to drouth and too close pasturing, had become weedy. I have now 110 acres of alsike mixed with timothy. Some of this I intend to cut for hay, and use the rest of the land for pasture. Alsike does well on land too wet for red clover. With me it seems to seed best in moderately dry seasons.
>
> I have sown alsike on timothy sod, also on wild-grass sod, and with grand success. With plenty of moisture the seed will catch and grow on almost any kind of land already seeded down to grass. I have never seeded land with alsike in the fall; but if sown with rye or wheat, and early, I see no reason why it should not winter all right. When sown early in spring, on rye or wheat, it makes a good catch, and is a success.
>
> I keep a few bees. Alsike makes a good bee-pasturage, and the honey therefrom can hardly be surpassed in quality.

Now, dear reader, please send me *your* report on alsike, in case you have one, no matter whether favorable or otherwise. The bee-keeping fraternity wants all the facts about alsike it can get. Owing to the rapid destruction of basswood we desire to supply its loss with something that will be at least its equivalent. It is my belief that alsike clover is the very thing we want, and is a profitable substitute for basswood. I have kept bees for many years where basswood abounds, and have had more or less experience with alsike, and I have concluded that I should much prefer to depend on alsike for honey. One thing is certain—the honey from alsike is superior to that from basswood, and gives far better satisfaction, as a table sauce, to consumers generally. At least, that has been my experience.

The reader will please notice, in the letter from Nebraska, that *sod* land, of any description, will do to sow alsike seed upon. This is a fact very important to know. It is by no means a new fact to the writer, nor to several others in this vicinity; but it may be new to the multitude. The present winter is just the time to scatter alsike seed upon sod land. The melting of the winter snows and the early spring rains will be certain to cause nearly every seed to germinate and grow. Try a few acres at least, and note the results. Utilize the roadsides and the waste places everywhere, and especially the unused land of the railroads. If you own no land, try to induce some of the farmers, whose land is within short range of your bees, to give this plan of getting a start with alsike a trial. You can afford to make your farming friends a present of enough seed to keep every bee you own at work while the alsike is in bloom. But it is not necessary to do this, nor is it *policy* to do just that way. The better way is to supply them with seed at your own expense, and then have them repay you as soon as they ascertain the fact that they can afford to do so. This plan does not excite suspicion that you alone have an "ax to grind," and that you are on the hunt for some one to furnish the grindstone.

On sod ground, or when mixed with timothy seed, two pounds of alsike seed is plenty for one acre. Four pounds of alsike is plenty for one acre when sown alone. I have no alsike seed for sale, so please don't write me for any. I presume Mr. Root can supply the readers of Gleanings with all the seed they may want.

St. Charles, Illinois.

POISONOUS HONEY FROM YELLOW JASMINE.

BEES AVOID IT WHEN THEY CAN GET HONEY FROM OTHER SOURCES.

By J. P. H. Brown.

In reply to the question you ask in your footnote appended to the article on yellow jasmine, by Mr. M. Arter, page 24, I beg leave to say that my apiary is surrounded for miles by yellow jasmine; and from a close observation for nearly a fourth of a century I am prepared to give facts. It belongs to the composite family of plants, and is known in *materia medica* as *Gelsemium sempervirens*. The roots, leaves, and flowers of the vine are all highly poisonous, and very rapidly reduce the nerve-power and the force of the circulation. A few years ago a neighbor of mine lost a child that chewed and ate the flowers. The honey that is gathered from the bloom is also very poisonous, as I know of several persons who came near losing their lives by eating it. The "old gentleman" referred to by your correspondent is correct in his observations.

In my latitude the jasmine commences to bloom in February, and often continues till the last of March; but if there is much rain and wind the blooms drop very soon. The honey-bee does not work on it from choice; for when other bloom is yielding honey at the same time, the jasmine-flowers are seldom visited. Italians work on it more than the blacks; in fact, it is not often you see a black bee on it. Its flowers yield more pollen than honey, and I have found that what honey is secreted by the nectaries is used up in breeding. None is ever stored, except it may be in queenless colonies. Hence the "old gentleman" is correct in observing that jasmine honey is never capped.

The poisonous effects of the jasmine are observed upon the newly hatched bees after they take their first meal. They act at first as though intoxicated; then their abdomen swells up; they crawl out of the hive, and die. If the colony is very strong, and hatching brood rapidly, a pint of dead young bees can often be found in front of the entrance inside of 24 hours. The mortality ceases as soon as the jasmine bloom is over. It is also a fact, that, if sugar syrup is fed at this time to draw the bees' attention from the bloom, there is no mortality. The same occurs if there is a stress of bad weather to keep the bees at home. The young of black colonies are rarely ever affected in this way by the poison, because the blacks work but little on it. I have observed the workers also to be at times affected, but not to the great extent that the young bees are.

Augusta, Ga.

[Dr. Brown has given just the information we called for, and it is the more valuable because it confirms the article on page 24. Dr. B. says the newly hatched bees, after eating of the yellow-jasmine honey, appear at first intoxicated; then their abdomen swells up, and they crawl out at the entrance, and die. These are some of the symptoms of bee-paralysis (nameless bee-disease); and while that disease is prevalent in the South, it is *possible*, in a number of cases where bees die thus, that they are supposed to be affected with paralysis, when it is simply caused by jasmine poisoning. Those who are acquainted with the disease, or are situated in localities where no jasmine grows, will not make the mistake. Here is something further on the subject:—ED.]

Mr. Editor:—There are millions of jasmine-blooms every spring within a half-mile of my bees; and, as Bro. Arter says, the fragrance of its flower is very delightful; but the bees *positively* do not work on it in this vicinity, nor is there any poisonous honey in this section.

We are having *hot* weather here at this time —60 to 80° in the shade, and my bees are bringing in pollen from sunrise till dark. Every colony is storing pollen to-day. Is this a sure sign that they *all* have laying queens?

Cat Creek, Ga., Jan. 10. J. B. GRIFFIN.

[No, not necessarily.]

RAMBLE 101.

BEE-PASTURAGE AND GOLD-MINES; LYTLE CREEK CANYON.

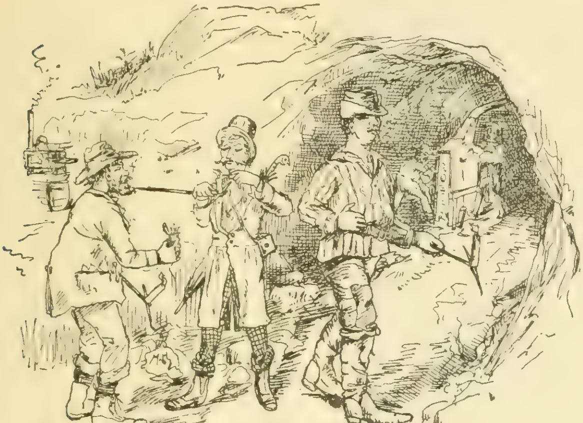
The location of an apiary in the brush, however, as recounted in our last, has its uncertainties, and especially so if located within the irrigation district. That good location, with its square miles of sage and other honey-producing plants, is liable to be sold to the home-seeker, and he is liable any day to find the brush falling before the ax of the recent purchaser, and he is ordered to move his apiary. In a majority of cases a bee-keeper would not think of moving the bees to the home place, but seeks some place beyond still in the brush or in the canyon. Perhaps the home place contains ten acres of land. It is about all set out to fruits of some kind. His land has cost him at least $100 per acre, and the addition of his fruit-trees, and the water-taxes, etc., have increased the value; then fruit-trees have to receive thorough cultivation and irrigation. The movement of one or two hundred colonies of bees to the home ranch then means the occupation of valuable ground. It furthermore means that my ten acres is surrounded by other people owning their ten acres; therefore the bees, when so cross as they are in this climate, especially in the height of the honey-season, are liable to attack any or all of these surrounding neighbors. Then after considering the neighbors and the valuable land, the wider grows the settlement and the further the bees have to fly to find the nectar, until the journey, at length, is too far to be performed profitably.

Mr. Sealer's apiary was thus located upon what is now wild land belonging to the Land and Water Co.; and, being a little anxious about the future of his honey-pasturage, he desired to explore Lytle Creek Canyon for fields that were new and unoccupied. We therefore set our faces that way. The country seemed quite level, but our pony seemed to think it a little too much up grade for her to make fast time. We concluded that she ought to know, so she was allowed to take it at an easy gait.

As we approached the foot-hills we found the surface of the country to change from the stoneless and rich loam to lands that were almost covered with boulders, not large but numerous. But even here we found government land claimed, and the squatter was industriously piling up the stones and improving the land. "Why," said I to Mr. Sealer, "just as though there were not land enough in this country without taking up land upon which they have to put so much hard work, to clear it and fit it for the production of crops."

"Yes," said Mr. S., "it looks that way; but this being government land it is obtained very cheap; and after the stones are removed the land is excellent for the production of crops, and especially for fruits."

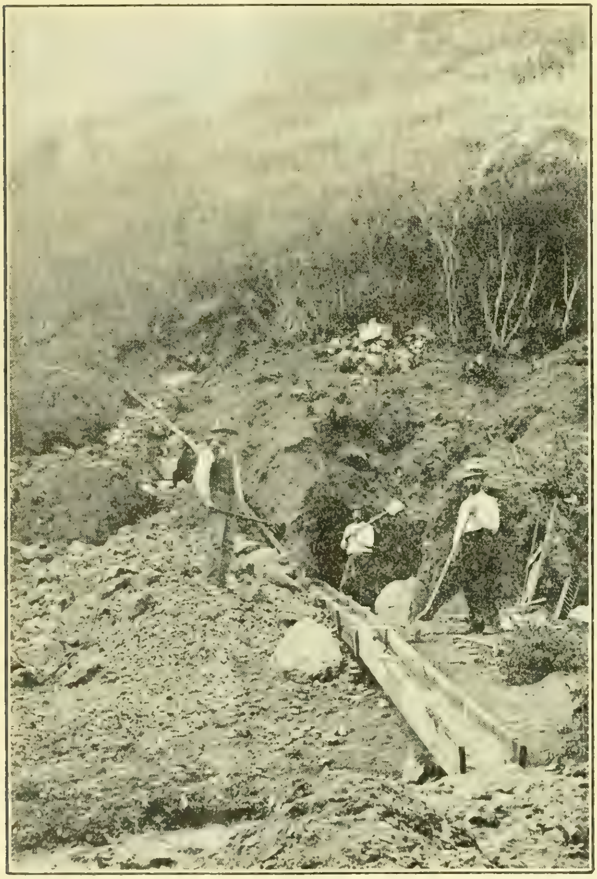
Lytle Creek Canyon runs back far into the San Bernardino range of mountains, and the lively stream of water that flows from its mouth plays a very important part in making thousands of acres of land produce most bounteous crops. Two rival water companies run their ditches in here side by side, and the proximity and the clashing interests have been in the courts. The Grape Land Co. is putting a long and expensive tunnel through a spur of the mountain, and proposes to strike about twenty feet under the bed of the creek above, claiming to take the underflow, while the other company will have the surface flow. Thus do interests conflict here over the little streams of water.


"Exploring the Tunnel. Big Foot Bill."

A bee-keeper of some local note has an apiary a short distance within the canyon. He is not noted, however, for the size of his apiary, which is less than 100 colonies, nor for the size of his honey-yield, which was not large; but he is noted for the size of his pedal extremities, and this apiarist is known far and near as Bigfoot Bill. When Mr. Sealer repeated this name to me I was anxious to see the owner of it. My imagination pictured a man with an enormous foot. It was soon our good fortune to find the gentleman. He was employed in helping to drive that water-tunnel to its completion; and instead of meeting a deformed specimen of humanity, limping around with one enormous big foot, I found a splendid specimen of young man, a six-footer, straight as an arrow, with a courteous bearing, and known by the civilized name of William Ingalls. I could hardly see that his understandings were much out of proportion to his body; but owing to his feet being athletic, as well as his body, he had earned his soubriquet. Our friend William soon invited us to view the beauties of the tunnel. The mountain had been punctured to a distance of over 700 feet, and the hole was just about large enough for a man to walk through comfortably. We were each provided with a tallow candle, and our candlestick had a sharp prong on one side. In fact, we might say that it was nearly all prong, to enable us to drive it into a soft place in the rock, or in a seam, and then work. Our errand was, however, to see how other men had worked, and we followed our leader. Seven hundred feet does not seem a great way when we pace it off on the surface anywhere outdoors; but when we crawl, as it were, into a hole in the rocks that distance, it seems quite a journey; and that hole we came in at, as we look back at it, grows smaller and smaller as we advance, and we find ourselves wondering if the eternal rocks will fall on us. But William sets a good example, and walks ahead unconcernedly, punching the sharp end of that strong pronged candlestick into the rocks overhead to see if any of them are loose, and explains many things of interest in relation to tunneling for water.

William managed his feet well in the tunnel. They did not whirl around and the heel get ahead of the toes, as ducks' feet sometimes do; neither did they get crosswise and block up the tunnel. In fact, William and the rest of us, in the words of one of Watts' hymns, kept "right in de middle ob de road." We did not get to the full depth of the tunnel, however, for, as we neared the heading, we met the smoke from a recent blast, and were advised to avoid it by retreating toward that light at the entrance, which was now about the size of a full moon. I noticed that William was very careful to turn around on his heels. His toes might otherwise hit the side of the tunnel, but would hardly hit the top.

When we entered daylight again we found some Spaniards whirling a rude sort of blower which conveyed fresh air to the heading and drove the smoke out. Of course, the men at work in this tunnel were in a bachelors' camp, and I noticed that the cook, who was quite an aldermanic man in his proportions, actually possessed larger feet than our friend William. In fact, the big cook seemed to be tired carrying so much foot around, and was observing a reclining position on a bench. From the healthy looks of the men, however, he was on hand and on duty at meal times. Had I been well acquainted with all hands I would have moved an amendment to that name, "Big-foot Bill," and substituted Big-foot Cook and Big-foot Camp. It occurred to us that tunneling is a very good business in connection with the bee-business. When you tire of working in the hot sun with the bees, then go into the tunnel and work in its cooling shades. Mr. Woodbury, treasurer of our State Association, it will be remembered, also has a tunnel into which he can retire for work and reflection. When we had seen all that William had to show us, we hoped him success in his tunneling operations, and also success as a manager of the busy bee, and continued our journey up the canyon.



PLACER GOLD-MINING.

Lytle Creek Canyon has been noted from the early settlement of this country as a gold-bearing locality; and about the first object that attracts attention upon entering the canyon is a large hill, half of which has been washed away by hydraulic mining. The person, however, who hydraulicked at such a rapid rate died (people in the full pursuit of gold die). There was some hitch in the after-proceedings, and that hill is left in a dilapidated and forlorn condition.

A little further along we came across two young men who were "in it," but on a small scale. They conducted water in a pipe down the hill, allowing it to flow through a long wooden trough, in the bottom of which were slats called riffles. The dirt is shoveled into the upper end of the trough, and what gold there may be in it is caught in the riffles as the dirt is washed along. The little fine gold dust that was thus secured was kept very choice in empty cartridge-shells. The camera caught a very good view of the mining operations, which will give the reader some idea of how the work is done. These young men were working hard with the pick and shovel, and were making about enough to pay for their victuals, or their "grub," as they termed it. They were thinking very loudly, that, if their luck did not soon change, they would seek some other business.

In another retired notch in the canyon a darkey owned a mine in which he claimed that he was getting $20 a day. The other fellows were, however, somewhat skeptical about his fortune. Seeing that our prospects were not flattering for gaining sudden wealth, and also finding that the honey-pasturage was not of a very favorable nature, we turned our pony's head homeward.

The search for gold seems to be very fascinating, and many men have spent the best part of their lives in this golden country prospecting and digging for the precious metal, and still have never made their fortune, and sometimes barely a living. Every piece of loose dirt all through this canyon has been worked over several times, and the marks of the pick and the little pile of dirt are seen away up on what would seem to be an inaccessible cliff on the side of the mountain.

If the young men we met, who were toiling for such low wages (some days they said it was ten cents) had turned their attention to the production of honey, even in this canyon, the profits from the golden drops gathered by the golden Italian bees would have been much greater than can ever be expected in an old worn-out mining region. As we journeyed homeward these were the reflections of the

Rambler.

CALIFORNIA ECHOES.

BY RAMBLER.

Mr. G. K. Hubbard is now smiling on bee-keepers in Riverside and vicinity, and introducing his patent hive.

What has become of Muth's honey candy, or caramels? We are sure they would tickle the palates of the lovers of sweets here in California. We don't like to see such things go up like a rocket and come down like a stick. We like to see them stay up.

The report of the Bee-keepers' Union, recently issued, is interesting reading. It might be termed "the Bee - keepers' Bunting - ram." When a fruit-grower is inclined to molest the honied dreams of his bee-keeping neighbor, turn that Arkansas-decision ram loose, and the troubler soon becomes very quiet. California bee-keepers should give the Union a cordial support.

There, now, Bro. York, please don't tack Jennie Atchley at the end of every short article in the Texas department. In the journal for Jan. 11th her name appeared six times on two pages. I had to pronounce the name so many times that, at the end, my jaws got to working as though I were chewing a hot potato. Jennie's name is a good thing, but you know the old proverb.

Wilder Canyon Apiary looks deserted. The proprietor is in the far East among the Green Mountains. "Recently," he writes, "the quail in my canyon shouted to me all last summer, 'Chicago, Chicago.' Now in my dreams, with a temperature at 20 degrees below zero, I hear them shouting, 'Come back here, come back here.'" The Rambler also has a faint idea that they shout, "Leave your gun, leave your gun."

There will be a chance soon for California bee-keepers to take advantage of the vast acreage of mesquite that grows on the Colorado Desert. Irrigation schemes are opening up that arid region for settlement. We hope to see the bee-keeper in the lead, as he always is. There will be rich pasturage out of range of the irrigation-ditches, which should be occupied. Of mesquite honey, those that are posted say it is beautiful.

That advice about getting bees out of rocks (see page 22) may work if the operator sits down by the hive for the whole three weeks. I tried that very plan, put the trap on at night, and climbed the rocks again the next night, and found every bee had worried itself to death; but even if I had caught the bees, the climbing of the rocks and the lugging of a dozen and one traps back and forth made the colony an expensive piece of property. I prefer to get bees some other honest way.

Mr. Pryal writes very interestingly in the *A. B. J.* about the safe way to ship queens across the continent. Will he now tell us how to ship queens safely from one part of this great State to another part of it? Last April Mr. Trickey, of Inyo Co., tried to get queens from South Riverside; but ere they arrived they were chilled past recovery. Mr. T. can not rear early queens in his county, and would buy from the warmer coast counties. Anybody who can supply Mr. T. with queens when he wants them will find a good customer. We hope Bro. Pryal will extend his experiments in that direction. It is a great deal better to work up one's own State than it is to try to manage a big continent.

I clip the following from the *Marysville Democrat:*

> A couple of days ago, at the farm of G. W. Hutchings, seven miles north of this city, a bee-tree was found near the east bank of Feather River, which was cut to obtain the honey. After the tree was down on the ground, an investigation was instituted, and the honey located in a hollow about half way between where it was cut and the top. On cutting the body of the tree open they secured about eighty pounds of honey, eleven duck eggs, and a dead duck. It appears that a wood-duck had formed a nest in the tree, having entered to the cavity through a hole that originally was large enough to admit her body. After laying eleven eggs she had commenced sitting to hatch them, and, while so doing, the bees filled the hole with comb so she could not get out, and she died on the nest.

A NEW ENEMY TO THE BEES.

MR. MATHEY DESCRIBES IT.

The worst enemy of the bee is, according to a new naturalist, the thick "humpbacked fly," *Phora incrassata*—a black little fly with a well-defined hump. It has lately been observed in Germany, and also in Russia and Sweden, as a terrible enemy of bee-brood. This insect sneaks into the hive at the first opportunity, seeks out a still unsealed cell in which the queen has laid an egg, and from which the larva has lately emerged, and then, by means of a long ovipositor, inserts an egg of its own under the skin of the immature bee. This egg possesses a terrible tenacity of life; for after three hours this larva creeps out and bores itself deep into the fat of the bee-pupa, and the cell meanwhile is capped with wax. After 48 hours the larva of the *phora* sloughs its skin for the first time; but at the end of another day and a half it goes through the same operation again. A pupal existence of 24 hours suffices to give it a bodily length of a tenth of an inch. Now the creature sheds its skin the third time, makes its way toward the larva of the bee, devours the rest of it, bites through the wax capping of the cell, and creeps out of the hive at the entrance, to seek the ground outside in order to pupate, and from the pupa to become a perfect fly. If this does not succeed, the transition from stage to stage takes place in the hive itself—the worst thing possible for the bees, for the newly hatched *phora* does irreparable mischief, so that the colony perishes.

PACKING VERSUS SINGLE-WALL HIVE.

DISADVANTAGES OF SECTIONAL BROOD-CHAMBERS.

By F. Greiner.

On page 344, 1893, Mr. Dilworth tells of his somewhat singular experience with packed and single-wall hives, which does not corroborate what has generally been conceded as a fact. My experience is in line with the great majority of bee-keepers, and I would not say one word about it were it not for the fact that I made just the experiment Mr. D. proposes. I will first briefly state how my double-walled hives are made. Outside siding of half-inch matched pine; inside siding of ¼ basswood, sliced in the manner of cut shingles. For packing, various materials were used, either chaff or sawdust, coarse or fine, or dried moss from the swamps, etc., the thickness of packing varying between two and three inches. Directly under the brood-chamber no packing was used, but a 1½-inch dead-air space was maintained by two sheets of tarred paper. For winter, old carpeting is placed on top of the frames, also a six-inch chaff cushion.

Now for the experiment Mr. D. proposes. Forty out of my fifty hives of this description were stocked up in the fall after the honey season. The first year, twenty; the next year, ten more; the next year, another ten followed. The last ten were stocked up the following spring. Some of the first-named forty hives were stocked up as late as Nov. 1, and had no chance to propolize and glue up the many cracks and crevices I had left on purpose. When I started into the winter with the first twenty I anticipated some trouble; but, to my surprise and great joy, the twenty colonies came out as bright and strong the next spring as any colonies I ever wintered in the twenty years of my bee-keeping. The little moisture which had gathered on the outside of the cushions did no harm, and disappeared soon. As average loss in these fifty hives, which I have had now for seven years, I can record less than five per cent; the single-walled hives average not less than thirty per cent loss, excepting those placed in the cellar; but even these have not done nearly as well as the packed hives, the difference not being so much in the loss of whole colonies as in the loss of individual bees in the different colonies.

The half-story as a brood-chamber has some advantages over the whole story, particularly when used singly and in the production of comb honey. But when we use two or more sections as one brood-nest, then the small size of the frames, and the lower sets not being readily accessible, are objections. It is fully twice as much work to look over 16 small frames as it is to look over 8 large ones, especially when we take into account that, in case of the small frames, the upper section must be lifted off to gain access to the lower one. When colonies are very populous this operation of lifting off and replacing the upper section does not go off as smoothly as it might appear on paper; the bees boil over in spite of smoke, and the readjustment is generally connected with more or less crushing of bees.

In moving to and from out-apiaries, the sectional brood-chamber does not help to facilitate the work, as two or more sections must be clamped together, which requires extra labor and fixtures.

I am not yet ready to discard the whole-story brood-chamber, even should I begin anew, but shall continue to use both, the whole and the half-story.

TO FASTEN FOUNDATION STARTERS IN BROOD-FRAMES.

I wonder if any method can be simpler and quicker than running them on with melted beeswax, or beeswax with a little resin added. Starch paste and glue are recommended by a few. The method of mashing in I have never tried, except in cases of emergency, and I am of the opinion that all these are slow methods. The melted-wax plan has always given me satisfaction, whether top-bars were grooved or not. The wax sets quickly, and frames may be used immediately after the operation.

When molding beeswax, the dish into which it is poured should be covered up to hinder it from cooling on the surface and thus causing the cake to crack. Should the cake, when cold, refuse to come out, turn the dish bottom side up, and turn boiling water from the tea-kettle over it. It will not stick long.

DZIERZON'S BAR-HIVE.

Up to the present day Rev. Dr. Dzierzon, the most noted bee-keeper in Germany, clings to his bar hive, and with it he accomplishes what many do not with the frame hive; but perhaps few have acquired the skill of a Dzierzon, and we are glad to accept the more convenient frame, although such may not be for the best of our bees.

PARTHENOGENESIS.

It has long been regarded as a law of nature, that there is no life without fertilization; but it really seems that some insects are an exception to this rule, and produce young without copulation and fertilization. This state of things has been called "parthenogenesis," and was first discovered by Dzierzon as a peculiarity of the queen-bee. Over a year ago, Metzger, of Hungary, asserted, and has since been trying to prove, that the queen, although she does produce life without copulation (in case of the drone) does not do so without fertilizing the egg with the sperm produced by herself. I have always been loath to accept parthenogenesis in so far as the non-fertilizing of the drone egg was concerned, and I hailed Metzger's efforts with great enthusiasm, hoping he might unveil the mystery; but as yet no positive proof has been brought out. If we take a ripe egg from the ovaries, or from the oviduct before it has passed the spermatheca, then subject it to the same conditions as other eggs are in the brood-nest of a swarm of bees—if such an egg would produce a drone, then Metzger is disproved. It would seem like the solution of a great mystery if M. could prove his theory. In the vegetable kingdom we find the male and female generally united in single individuals; but not so in the animal. Hermaphrodism here is as yet a myth. Still, it is not impossible but that we may some time regard the queen-bee and her reproductory organs in the light of a blossom of a perfect-flowering strawberry-plant.

According to GLEANINGS, page 174, 1893, in Abyssina and Morocco smoking is prohibited by law. That is the place I want to move to, but my better half objects, on account of the distance. In this, our free and civilized country, the tobacco-slaves have driven me from court, caucus, election-hall, postoffice, etc. That's no credit to the country.

Naples, N. Y., Jan. 15.

[Your experiments, regarding packing versus no packing, are just as we should expect, and as our and others' experience proves. There is really no necessity for packing *under* the brood-nest. Our winter cases that do so well for us, protect the top, sides, and ends of the single-walled hives—bottom same as in summer.

The presser methods of fastening foundation are greatly inferior to the melted-wax plan. A still better plan is a heated plate, so arranged as to slide under the edge of the foundation melting its edge, instead of dipping the sheet in melted wax. We formerly advocated the presser method, but find the hot plate does the work more rapidly and at the same time economizes the foundation.

We are glad to get your experience on the sectional brood-chamber. We have not, so far, been successful in handling those chambers without having bees boil all over; and it is true, that it is twice as much work to handle over 16 half-depth brood-frames as the same surface of comb in full depth frames. It may be argued that it is not necessary to handle the frames; but it is sometimes, and perhaps more times than is in accordance with theory.

Yet, it is quite possible that there is a future for the shallow hives, because, it is true on the other hand, that much can be done without handling frames. To a lesser extent, this is true of full-depth hives. We should like to know more fully what your experience is along these lines.

FOUNDATION.

DO BEES ADD ANY WAX IN DRAWING IT OUT INTO COMB.

By M. W. Shepherd.

The article in the December 15th issue of GLEANINGS, from R. L. Taylor, leads us to ask whether bees ever thin the septum of comb foundation at all; if so, under what conditions? Do they ever pull the side walls of the foundation to make the cells? If so, under what conditions? We hear much about the different grades of foundation, such as light brood, heavy brood, etc. Now, is it any difference to the bees which they have? If so, what is it?

We have had a little experience in the matter, and it does not coincide with the generally accepted theories. Has any one ever weighed a sheet of foundation before giving it to the bees, and then after it had been drawn out into a perfect comb? We venture the assertion that, nine times out of ten, it will be found that the bees have furnished every particle of wax to make the cells of the comb, regardless of the amount of wax in the foundation. Sometimes bees make the base of natural comb much heavier than much of the artificial foundation. Why is it, if not because of an overabundance of wax secreted?

During the past season we found swarms of bees whose abdomens were literally covered with wax scales. Now, when put on full sheets of foundation what did they do with that wax—throw it away, or use it to build cells on top of the foundation? We don't believe it was thrown away by the bees; in fact, we can prove it was not.

We have often heard how much it cost to let the bees build their own comb. With due respect for experimentalists, we ask how you know that, under normal conditions, wax is not a spontaneous production, and costs the bees nothing to produce? It seems that an all-wise Providence would make no blunder in the matter.

BEES STINGING EVERY THING, AGAIN.

M. F. Tatman, on page 918, 1893, tells us about how his bees stung every thing on the farm, and, friend Root, you say it must have been caused by robbing. We shall have to differ with you right there. We handled bees in California that would sting in season and out of season. They drove people from their work, over half a mile from the apiary, and it was as much as one's life was worth to step out of doors without a veil over the face; yet all this was during the heaviest honey-flow I ever saw, and there was no robbing going on at all; but it was just the nature of the "Cyps," and it is possible that friend Tatman has a dash of that blood in his apiary.

Rochester, O., Dec. 25.

[Years ago, as some of our older readers will remember, we weighed pieces of surplus foundation before and after it was drawn out by the bees. We can not just now place our fingers on the page and volume where these experiments are recorded; but if memory serves us correctly, the scales showed that the drawn-out comb weighed but a small trifle more than the foundation from which it was originally drawn, proving, in this case, that very little wax was added to the foundation. Combs two-thirds drawn out weighed just as much as the foundation. Other experiments showed that, bees put more extra wax on sometimes, than others. Particularly was this true when we used bleached foundation, as was done years ago. This is easily explained on the ground that, the bleached wax was much harder than the yellow, and the bees rather than *draw* it out, added to it. With ordinary soft yellow wax, such as is now sold, the results were as we first stated.

These experiments can be easily repeated. Weigh a strip of foundation before putting it into the section; weigh it after it has been drawn out into comb. Likewise weigh a sheet of brood foundation before and after it has been drawn out. In fact, we wish many of our readers would try this experiment, and report. Different localities, and the character of the honey-flow, whether light or heavy, will have an important bearing on the question.

Regarding those cross bees of Mr. Tatman's we would say that we do not understand that the bees were habitually cross, but only on the occasion he speaks of. We can account for *a sudden* disposition on the part of all the bees to sting everybody and every thing, only by robbing. We know there are many apiaries into which it is not comfortable to go without a veil; in fact, we have been in a good many such in our travels among bee-keepers; but they never, unless robbing has been going on, sting chickens, horses, posts, and other inanimate objects. If any one wants to see how bees can sting all at once, let him set out a few combs toward the close of or after the honey-flow.—ED.]

WILD-CUCUMBER VINES

SAID TO BE A PEST IN THE SOUTH.

By C. P. Coffin.

In a footnote to the article entitled "Raising Bees," on page 53, you advise the use of the wild cucumber as one of the most rapid-growing vines, and for that reason preferable for training on a trellis, to raise the flight of bees. If the vine you mention is the same that grows wild in this section, and known as "wild cucumber," it must either be bereft of its bad qualities in your climate or else you are unaware of the fact that it is one of the worst pests that farmers have to contend with, and that, at least in some localities, they would almost as soon have the Canada thistle on their farms.

The vine I speak of is, as you say, a very rapid grower, and would make, in a short time, a dense screen of luxuriant foliage; and this characteristic is the chief reason why it can not be kept down and out of the way by cultivation of whatever crop it is fighting with for "right of way," as I will explain further on. It gets its name I imagine, from its great resemblance to the true cucumber, both in foliage and fruit, for it has a fuzzy or prickly fruit, which looks a good deal like that of the domestic variety. But it also has in great profusion an outside covering of fine "stickers," or "prickles," that come away at a touch, penetrating not only the bare flesh but also all ordinary clothing, causing an insupportable stinging and itching that will last for days.

This vine finds a congenial home in the fertile low grounds of the Mississippi Delta. A few years ago, when I was living there, a small part of the plantation where I lived—some 150 acres of rich low ground, planted to corn—was infested with wild cucumber; and although the cultivation had been thorough, and the ground kept perfectly clean as long as the corn could be plowed, the vine came up and took possion in the fall, covering the ground and festooning the cornstalks completely, and making it a problem as to how that crop of 60 to 80 bushels of corn per acre could be gathered. This was the way it was solved:

Before hands would attempt gathering the crop, each man had to be furnished with a jacket and a pair of over alls of thick duck, to protect the body and legs, while long gauntlets and high top boots guarded the hands and and ankles. Even thus armored, few escaped scot free. So, you see, down this way if we used our wild cucumber as a bee-break we should be keeping off bee-stings with stings a hundredfold worse.

On a trellis I used in the way mentioned, we yearly grow the different varieties or morning-glory, cypress-vine, cinamon-vine, maderia-vine, with success, making something very pleasing to the eye, as well as useful, while a permanent obstruction in the shape of rapid-growing trees is coming on.

Our only severe cold so far was early in the winter—40 to 65°. Weather for the past month is swelling buds, and many early plants are in bloom. Flowering quince is in full bloom, and bees are on every flower. We are digging new potatoes, and using for the table beautiful lettuce grown in the open ground. But the blizzards that come in the spring will, no doubt, change things before long.

Pontotoc, Miss., Jan. 22.

[Wild cucumber does not seem to be a pest here in the North, though it doubtless is with you. The original vine we had at our old home is still doing well, but does not seem to show any of the bad traits you refer to.—ED]

TAXATION OF BEES IN PALESTINE.

HOW THE PEOPLE ARE PLUNDERED UNDER THE CRESCENT OF MOHAMMED; A HINT TO THE ENEMIES OF THE CROSS.

By Ph. J. Baldensperger.

Palestine is a small province belonging to the Turkish empire, as everybody knows. A pasha, or governor, is in command of Southern Palestine, reigning in Jerusalem. This, again, is directly dependent on the *wali*, or chief governor, of Syria, reigning in Damascus; but of late this has been erected into an independent governorship, or pashalik, depending directly on Constantinople. The pashalik of Jerusalem is about as it was in ancient times—Judea—though Philistia and Sharon should come under this jurisdiction. Sharon depends on the pasha of Nablous (a corruption of the Neapolis of the Greeks, and the ancient Sichem), while Philistia is under (or, rather, without) control of the reyem-makam—a sub-governor of Gaza, the city whose gates Samson carried off. Those governors and sub-governors command only as long as they have direct influence—in fact, in some places it is only robbing the peasants in harvest time and hurrying home loaded with treasure. Some villages are more daring than others. Philistia is open to highway robbery. In fact, the most dangerous is the direct road from Jaffa to Gaza; and only a few miles from each of the above-named cities it is still more so. Jaffa is also commanded by a sub-governor, or rayem-makam, a very daring Bedouin robber, who, carrying his exploits up to the gates of Jaffa, was taken hold of by four gensdarmes, near one of our apiaries, and bound to be taken to Jaffa ; but four Bedouins followed them, killed two of their horses, gave them a sound flogging, and told them to go and tell their master what they had seen and heard, and not to put their foot there again, and it was so. They never came again, and the robbery goes on. Two years ago the robber assassinated a very rich and influential man. A hundred cavalrymen were sent out to arrest him. He used to come around and chat with my apiarist, laughing at the squadron looking for him in places where he was not. A few days after, the captain and cavalry and the sub-governor of Gaza retired, not finding him; and Abu-Henna, undisturbed, went on to rob. Our apiaries were thus in the three divisions of land. Being on the borders, we had our apiaries very often in Philistia, while our machines and tents were put up in Sharon. This helped us subsequently a great deal.

The population of Palestine is mostly Mohammedan. There are very few villages in which are Christian natives belonging to different sects—Greek, Roman, and others. Bethlehem, and the village of Bethjala, have almost wholly Christian populations.

Our increasing apiaries, and the quantity of honey taken, awakened the jealousy of the authorities and also that of some villagers through whose ground we used to pass with our bees. Taxes are gathered in different ways in the different districts. In principle, the tenth part of all income is to be given to the government direct, but the officials sent to us were bribed by the villagers, and, of course, very little reached the treasury. Every system was tried, till at length taxes were put up at public auction, and those that paid most had a village to gather. Naturally enough, under such circumstances the purchaser would buy the mayor of every village, and some councils, and levy taxes at leisure. Thus one day, to avail themselves of the taxes in the village of Urtas, near Bethlehem, they resolved to make us pay a good deal more than was due. Bees are generally taxed at sixty paras (about 7½ cents) a hive. As this would not raise a big sum, they stated before the council of finances in Jerusalem that our big hives ought to be taxed differently, as yielding more honey. The council deliberated, and agreed to make us pay four times the price laid on the native hives. Accordingly the tax was put up to six piasters, government money, equal to about 30 cents; but even this would not raise the sum high enough, for they came and found only 180 hives. So, again, another trick must be contrived to extort more money. In a council of the village they concluded to say we had 1800 hives. This was a simple thing to do—a zero was put after the 180; but we refused to pay such a sum. After considerable arguing, I went to the governor of Jerusalem to declare that we had only 180 hives, and were ready to pay what was lawful, but not more. The governor was ready to help us, but he insisted that we really had 1800 hives, and made me stay quite alone with him. I could not then see why. When we were alone he addressed me in French. I was standing some distance off talking to his "excellency;" but when alone he put a chair beside him and asked me to sit near him, which I did, but still insisting on being ready to pay for 180 hives. He now tried to make me understand that he could arrange affairs; but as I did not understand the point, he bade me adieu and I left his presence. I heard ultimately he was full of wrath against me for not having offered him a sum of money. I went thence to the Court of Justice. The supreme court is held in the Turkish language and translated into the Arabic. Here again I met the same "Lord Judge." He walked up to me, and, hand in hand, we went through corriders and rooms to his "excellency," the governor. As I had had very little to do in these palaces I was not "up to the times." This judge asked, as I afterward heard at another trial, whether I would not bribe them. These "Lords of the Justice" are not satisfied with small sums, but we still hoped to get over the difficulty by referring to our consul-general, and finally to our ambassador in Constantinople. Now, it may here be said we were four brothers, bee-keepers; and, having our apiaries in different parts of the country, naturally enough we could not all be in one place; and when the tax-gatherers came, an act of politeness was omitted by some of us. It is customary among Arabs to invite these officials to sit down, drink a cup of coffee, and converse about different topics (not the weather), and last, but not least, about the tax laid on; and, in a gentle way, to make one understand that his taxes are very high, etc., no matter what he has laid on. This had been omitted, I said, and the official's wrath at such reception got the village mayor and his municipal council on their side, by promising them a share in the spoil, while on our part my brothers warned them to be careful and mind our consul. But the officials knew better; and our consul, like all other consuls, as was proved afterward, was our representative to defend our *persons*, but has nothing to do with our *property*, and does not interfere in tax-gathering. A last act, or trial, toward mending affairs was begun after six months' arguing. In an assembly of Jerusalem nobility—the *Effendis*—are descendants of the great Mohammedan warriors and generals, Chalid and Houssein. I thought of appealing to their noble qualities, as representatives of holy men and guardians of the most holy temple at Jerusalem, to touch a chord of sensibility; but they took it as satire, and closed the question by condemning us to pay $150, O. S., equal to something over $600.

Nice, France.

(*Continued in our next.*)

HEREDITY.

By C. C. Miller.

The fight is still on, across the ocean, with regard to heredity. Mr. Metelli, in the Italian bee-journal, *Apicoltore*, asks the question, "Is it true that the exchange of the queen of a lazy colony for a queen of proved excellence often fails to change the natural qualities of the colony, and after the exchange it remains just as lazy as before?" To this he replies, that, according to his experience, with not many exceptions, a change of queens does not suffice, and thereby time, trouble, honey, and a good queen are uselessly sacrificed. This, he argues, is inexplicable on the ground that, from the queen, come all the characteristics and instincts of a colony. But the matter is no mystery on the ground of inheritance from the workers, if we concede that, in every fertilized egg, lie inclosed all slumbering instincts and characteristics of the race, both good and bad, in their various degrees, and that it depends on the special influence of operating circumstances, such as food, climate, etc., whether these characteristics shall develop more or less, in this or that direction, or one at the expense of the others.

That keen observer, Herr Reepen, quotes Dr. Metelli in the German *Centralblatt*, and replies that practice has sufficiently proved that the character of a colony changes on the introduction of a queen of another variety. A colony not given to swarming becomes a swarmer after the introduction of a Carniolan queen, and a cross colony in most cases becomes gentle after receiving a Carniolan or Italian queen. He gets in a sharp rejoinder by saying that, if it is true that a good queen of proved excellence is uselessly sacrificed when given to a bad colony, how does Mr. Metelli know that the queen removed was of bad character? and how does he know that the new queen is one of proved excellence, if the queen exercises no influence in changing character? In other words, how can you prove that a queen is excellent by the excellence of her workers, if those workers do not inherit their excellence from her?

Whatever may be the reply to this, it seems to me that we should not so much spend a great deal of energy in finding the reason for supposed facts, as to find positively what the facts are. And that should not be so very difficult. Say colony No. 1 is very cross, and No. 2 very gentle. June 1, exchange queens. Aug. 1, if the colonies have remained without change, we may conclude that the workers then present have inherited their dispositions mainly from the workers. If the colonies have exchanged dispositions, we may conclude that the disposition is mainly inherited from the parents. I say *mainly*, for it is possible that it may turn out that, while it is true that traits do come through the parents, and mostly in that way, still the influence of the food taken in the larval state may have no little influence on the young queen in deciding what characteristics she shall bequeath to her offspring.

Another test, perhaps more satisfactory, although taking a longer time, would be this: From the same batch of queen-cells let one be given to the bees of a very cross colony and the other to the bees of a very gentle colony, and then note the difference in the bees of the two queens thus raised.

The question of interest to practical bee-keepers—and it is an important one—is this: What attention, if any, am I to pay to the nurse-bees that raise the young queen? If the influence of the nurse-bees is even a very small one, we want to take advantage of that small part, especially as it will not be such a great deal of trouble to use our best workers to raise queens. No single observation, of course, can decide much; but if all bee-keepers have their eyes open during next season, and then report, the sum of the evidence ought to leave the matter practically settled.

Indeed, no little could be done if there were gathered together all the experiences of the past, bearing on the question. While I have given in a previous number some reasons for believing in inheritance from nurse-bees, I must confess that all my observations of the past from actual experience, that I now have in mind, point in the other direction. In several instances I have killed the queen of a colony because the bees were very cross. In each case there was a decided improvement in the temper of the bees. Not only was the difference apparent as soon as the workers of the old queen had died off, but in at least two cases the difference for the better was decidedly recognizable before the time when these had had time to die off. Does that mean that the cross bees are confined to those that are less than a month old, or does it mean that the presence of the queen herself has some direct influence on the disposition of the workers? I think it is quite generally agreed that bees are crosser when queenless. Putting it in another shape, they are not so cross when they have a queen. Now, if the presence of a queen makes a difference in their tempers, is it not possible that the presence of one queen may produce an effect different from that of another? However, it is possible that, in the two cases of which I speak, some other cause, independently of the queen, may have been at work, thus making a difference in the temper of the bees.

Marengo, Ill.

HEREDITY IN BEES.

CHARACTERISTICS COME ONLY FROM PARENTS.

By Rev. L. J. Templin.

By heredity is meant that influence that parents or other ancestors exert in determining the qualities or traits of their offspring. That such a power exists was well known to the ancients; but the extent and importance of the law of heredity are but now coming to be understood and appreciated. Any one who attempts any reformation or improvement in mankind or the lower animals, or even in the vegetable kingdom, without taking into account the law of heredity, will soon find himself hopelessly groping in the dark. In considering the forces or influences that determine the characteristics of offspring, several different laws, partly modifying and partly complementary, must be considered. The first to claim our notice is—

THE LAW OF SIMILARITY.

"Like begets like" is the universal rule among all organic beings. The child, in all essential qualities, resembles the parents; the offspring is a duplicate of the immediate progenitors. We know of no exception to this law, except in the case of monstrosities. If it were not so, no reliance could be put in the course of nature. A mare might bring forth a calf, or a ewe might give birth to a litter of puppies. The offspring partakes of the traits of both parents, and, as a necessary consequence, must differ more or less from both. There seems to be no rule by which to determine the degree to which each parent contributes to the characteristics of the progeny. In some cases the young has a closer resemblance of the father, and in other instances the likeness of the mother is more striking; while in still other examples there is such a blending of the traits of both parents that neither one predominates. And it is possible that, in an occasional instance, there may be no apparent likeness of either. Much has been written on the question as to the degree and manner in which each parent contributes to the make-up of the progeny. But it is doubtful whether there is any law governing the case, except that the one of the purest blood and greatest vigor at the time of copulation will generally impress its peculiar traits most strongly on the offspring. The above law is modified, within certain limits, by

THE LAW OF VARIATION.

All organic beings have a tendency to vary from the exact likeness of the parent in a great many small and unimportant particulars, but always within specific limits. It is under the operation of this law that we expect the improvement of our stock by selection and careful breeding. Another method is by crossing different breeds or strains, or by hybridizing different species. These variations, doubtless, arise from well-established though often occult and unknown laws. Some of these causes are known, at least in part. Probably the most potent of these in determining the character of a new being is

THE LAW OF ATAVISM,

or, as it is often termed, of reversion. It is a fact of frequent occurrence, that, in raising improved races in either the animal or vegetable kingdom, undesirable qualities, that were supposed to have been long since "bred out," are found cropping out, to the disappointment and loss of the breeder. Thus a black or brown sheep occasionally appears, to remind us that the white race of sheep originally sprang from a black race. Many of the so-called freaks of nature are only reversions to the original type. This fact requires the utmost care and diligence in "weeding out" every specimen that does not come up to the desired standard, by the breeder who wishes to improve his stock. It is not enough that an animal be full-blooded, and possess the characteristics of the breed of which it is a representative, but it should possess them in an eminent degree to make it a desirable breeder.

Another thing not to be overlooked is the well-known fact that surrounding objects and influences, especially if of a startling character, often operate through the mental and nervous system of the mother, to impress on the embryo physical, mental, and moral qualities that will be as lasting as life. Food, temperature, moisture, altitude, and possibly other conditions and influences, have a share in modifying the traits of a race of animals or plants, and should be taken into account. If the climate is rigorous, the race will become "acclimated," either by the less hardy dying off and leaving only the more enduring to propagate, or by some change in the constitution. A permanent supply of abundance of food tends to increased size, earlier maturity, and an increased disposition to take on fat; while a scant supply of food tends to reduced size, retarded maturity, and greater activity. But, of course, these changes are very slowly produced, and they are produced by a gradual change in the constitutional characteristics of the race. On page 921, 1893, Dr. Miller teaches that it is the food furnished the fœtus that gives it its distinguishing characteristics. A white cow bred to a black bull produces a white calf because the food that developed the embryo was furnished by a white mother. In other words, if I understand Dr. M., the color of the mother determines the color of the offspring. But, suppose the calf is black, roan, or pied, as it is just as likely to be as it is to be white. Where does it get its color then? Are all young animals the color of their dams? What has the food furnished the animal through the placenta, before birth, to do in forming the inherent traits of a young animal, more than the food furnished through the udder after birth? No man can say that it has any. Can the natural traits of an animal be changed by the food on which it is raised? Can a shorthorn calf be changed to a Jersey cow by feeding it on Jersey milk? Can a white child imbibe negro traits at the breast of a negro mammy? If so, an Italian queen can be given the traits of black bees by being raised in a hive of such bees. According to Dr. M.'s theory, she should be changed to a black queen. The food only nourishes and develops the latent powers inherent in the germ before the feeding began. The egg that produces the queen contains potentially all the natural traits of the race or races to which the parents belong. All that feeding can do in all ordinary cases is to enlarge and develop those potential forces. I am of the opinion that those persons of whom Dr. M. speaks, who have believed they had evidence that the character of queens is changed by the nurse-bees, are laboring under a mistake. The changes that they have observed in their queens, and that they have attributed to the influence of the nurses, most likely have been the result of some of the obscure influences mentioned above; or they have resulted from improper mating. The mating of queens is such an absolutely unknown quantity in a problem of this nature, that it is far more rational to find in it the key to any anomalous traits appearing in our queens, than to attribute them to a cause that does not operate, so far as we know, in any other part of the animal kingdom. I conclude that it is a perfectly safe method to do as Dr. Miller has done, and, as I suppose, most other queen-raisers have done, entirely ignore the character of the nurses to which eggs are committed for the raising of queens, provided they are populous in young bees, have abundance of food, and not a large stock of unsealed brood.

Canon City, Colorado, Dec. 28.

[If we are correct, Dr. Miller did not say that, in the case of mammals, the nurse might transmit through the food her characteristics of markings or disposition to an offspring of other parents, but that, from numerous observations, it seems *possible* that there may be an exception in the case of *the bee*. The bee, on hatching from the egg, is not a perfect individual. It hatches a *larva*, and it is then that it is supplied with a new food which helps to make it a perfect bee. In the case of mammals, the young is a perfect individual as soon as it comes forth into the outer world. The larva of the bee is not. Our correspondent has given us some interesting facts on this subject of heredity, and his article will be read with interest.—Ed.]

HOW TO ADVERTISE HONEY.

IMPORTANCE OF BUILDING UP A REPUTATION ON HONEY.

By Wilder Grahame.

Shortly before the honey is ready for market, but not until you are reasonably sure of its production and quality, place an advertisement in the paper selected, in which your trade-mark is given good prominence. A small advertisement will cost less, and, if well displayed, attract more attention than a larger one of poor makeup. I have seen half-inch advertisements that I should prefer as trade-bringers to other half-column advertisements in the same paper. Still, half an inch is rather small in a daily. Two or three inches ought to do the work if continued long enough. But don't go into the "want" column. It is worked to death, and not appropriate for a trade advertisement; at least, it should be supplemented by display; and the latter, if properly done, can do the work alone. Remember, too, that a little toad seen often gets acquainted sooner than an elephant appearing rarely. You want your advertisement to get acquainted and familiarize the people you are trying to reach with your trade-mark. Then when you are ready to place a small consignment of goods with the grocer who deals with this same class of readers, your trade-mark on the goods will attract their notice and remind them of what they have read about it. Even if they have not read it they will be familiar with the trade-mark, and the sight of a familiar object in an unfamiliar place is sure to create interest.

Having in this way secured your audience and an occasional sale, it remains with you to have the goods as nearly uniform and as uniformly perfect as it is possible by human ingenuity to make them. If the apiary is large, and the sales reasonably so, it would be most profitable to raise regular patches of white clover, etc., convenient to the hives, for the double purpose of economizing the time of the bees, and to prevent their introducing honey from other sources and producing a mixture.

It is not the work of a single season only, to build up a reputation, but one of years. Nevertheless it is time well employed. The reputation of A. I. Root, built up by advertising, and sustained by fair dealing, is an example of success in this line that has cost time, hard work, and money. But, without consulting him, I am not afraid to leave it to him to say whether he would not, even from a purely commercial standpoint, rather lose his present working-plant than his present reputation and eminence in his line of business. The former could be replaced much more readily than the latter.

It is evident, then, that, with a reputation once secured or growing in the locality desired, the greatest care is necessary that no inferior goods are ever allowed to creep in as first class. That trade-mark is a personal guarantee of the producer, the failure to sustain which would be as much of an impeachment of his reputation as a failure to meet commercial obligations.

There are, however, different tastes in people, and consequently may be several classes of what may properly be called first-grade honey. Some people prefer clover, some basswood, some buckwheat. I plead guilty to the last myself. But few like a mixture. If it is buckwheat honey, label it as such, and guarantee its purity with your trade-mark. If it is clover, ditto. Clover honey is as objectionable in buckwheat as buckwheat is in clover. Keep them as well separated as possible, and put no mixture on the market as first grade. Then as to prices, it is worth more than the common store grades; charge more. People will pay it after they have been convinced that it is of superior quality, and worth the extra cost.

It always happens that some honey, otherwise entitled to first rank, is in ragged or irregular combs. This, if absolutely pure and unmixed, may be extracted, and handled in the same way the first-grade comb honey is; for as extracted honey it really *is* first grade. I usually select the supplies for personal use from this grade, though never if the comb is broken enough to allow the honey to escape. Then it is only fit for the extractor.

The lower grades are those composed of mixed honey, uncapped combs (although the latter may be fit to put into the extractor if allowed to ripen), combs in which brood had been started, etc. Their disposal depends on individual conditions and the demands of the surrounding country. Poorer people are sometimes glad to purchase this grade. Some will do for a second quality of extracted, and some I prefer to feed back to the bees.

JAKE SMITH'S LETTER.

Mr. A. I. Gleenings: deer sir:—I like them dovetail hives first rate. They go together so slick. You doant have to hold one piece careful on another, and then when the nail is druv find you didn't hold it just right; but when you drive them dovetails together they're bound to be right. And it's a great thing to have movable combs soze you can git at the innards of a hive.

First time I used that Crane smoker, Zed he said he'd blow for me. So he got up steam in good shape, so the smoke was thick enough to cut with a knife. I took off the lid of the hive, and Zed he let em have it good and strong. It was so black you could scarce see through it. Pirty soon I noticed the bees was just a pourin out the mouth of the hive.

"Hold up, Zed," says I; "you're a makin em swarm."

"You're right," says Zed. "Well, now, isn't that a new idee? Just see em come! Now we'll know how to make bees swarm after this. But isn't a smoker the thing!"

But they didn't swarm. They just spred all over the front and side of the hive, and bimeby they went back in. The way we do now, we just puff the least bit of smoke in at the mouth of the hive, then raise the lid a little bit and puff a little smoke in, then take off the lid and blow the least bit all over the top, but not down into the bees. Any time they git obstreporous they git another little touch, but we never make it look like a pillow of smoke. When I git my eyes full of smoke I feel sorry for the little bees, for Zed was a readin that a bee has 5000 eyes, so it must hurt the bee 2500 times as much as me with only 2 eyes.

With these new hives so you can lift out a sash of comb any time, it's ever so much handier than with the old scaps where you had to brimstone the bees and split up the scap before you could see what was inside. But it was a little to handy for Zed, for he kep a pullin out the combs so many times a day that the bees had no chance to work. We finally settled down to the idee that, if you want the bees to do their level best, you mussent pull out the insides of a hive only just when you hefto.

Zed he's been a tryin all sorts of things to burn in the smoker. Some he's read about, and some he hasn't. Among other things he tried weather-beaten corncobs pounded up with the butt end of an ax; pine cones, rags, paper, bark, rotton wood broke up, sound wood cut up, and reelly it seems most any thing will do. Rags or paper has to be tied up in rolls, and an old calico apron will make enuff to load a smoker a good many times. They was a dead apple-tree near by, and it was right handy to reach up and break off a little limb and then break it all up in little pieces short enuff to go in the smoker. They aint any thing better than sound wood split up in little pieces a ¼ inch through, only it's a good deal of work. Go to the cook stove and fill your smoker an inch deep with hot coals, and then put in your wood.

When I gits my eyes full of smoke I feel sorry for the little bees!"

Spunk wood from rotten ellum is handy to light with, and that that's soft and white from rotten apple is good too. One of the easiest things to git is planer shavins. First git some common shavins a carpenter makes at his bench. You'll light some of them and then fill up with planer shavins, and put the whole thing out. Now emty out your smoker and try it over again. Light one of the bench shavins and drop it in. Blow the smoker just a little. Drop in another bench shavin—loose—then another; and as fast as the blaze comes up through, drop in another; but be sure not to pack them down the least bit. When your smoker is full of loose bench shavins, it will begin to git emty by the shavins burnin, and you a blowin all the while, and then begin throwin in the planer shavins loose, and a blowin as you fill in; and by the time you git it full, pack it down a little and you're all right. If you pack too tight you'll put it out, but you'll learn. If you can git hardwood turnin-lathe shavins, that's better than planer shavins.

Another way maybee you'll like better. Soak a ¼ pound of saltpeter in a quart of water; soak spunk wood or any rotten wood in it and then dry it. You can light that and put it in a smoker, and then cram any kind of fewel in and it won't go out. Jake Smith.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

EXTRA COMBS FOR EXTRACTED HONEY.

Question.—Heretofore I have worked my apiary for comb honey, but think of working for extracted honey the coming season; therefore I should like to know which is the cheapest and best way, all things considered, to obtain extra combs for the purpose, not having any extra combs on hand.

Answer.—Under such circumstances I think I should buy comb foundation, putting it into wired frames. I could never make a success of having combs built in upper stories, although I think that, where working for comb honey, there is greater success in allowing the bees to build their own combs, where the apiary is worked on the swarming plan. The trouble in trying to have combs built in upper stories lies in the fact that too large a proportion of the comb will be built of the drone size, hence it can not be transferred to the lower story of the hive without producing a host of useless drones as consumers of the honey gathered by the workers. Looking toward the best results, I would suggest that a few of the strongest colonies be supplied with frames of foundation, two or three weeks before the honey-harvest arrives, and fed sugar syrup, if you have no inferior honey, feeding them very liberally so they will work with a will in drawing out the foundation into combs, and thus you will have some combs to use in the upper stories, together with the frames of foundation necessary to fill out the hive. In this way the bees will not have any excuse for idleness in waiting for the foundation to be drawn out when the honey-flow is upon them. For the purpose of feeding, to have foundation drawn out, a cheap grade of sugar can be used; and if you have any inferior honey it can be profitably disposed of in this way. Now allow a word by way of suggestion: If you have never worked for extracted honey, would it not be well to devote only half of your apiary to that purpose, working the rest for comb honey the same as formerly? Because you have made a success in raising comb honey, it does not certainly prove that you will be equally successful with extracted honey, although the prospects may point that way. And should you be successful, there is a possibility that you may not like this part of bee-keeping as well as the other, therefore it might be the part of discretion to go a little slow until we are sure that the new enterprise will be just the thing we desire.

WINTER PASSAGES IN COMBS.

Question.—I have noticed that, when I transfer bees and combs from box hives, some of the combs have nice round holes in them about half an inch in diameter. Do bees make their winter-passages in the combs thus?

Answer.—I do not think that bees ever leave holes through their combs with a view to using them for winter-passages. I have transferred many colonies of bees from box hives, but have never seen any uniformity of comb-building. I have seen the little round holes mentioned, but I have noticed that they are as likely to be found in one part of the hive as in another. This shows that these holes are caused, as a rule, by one of two things, the first of which is the larva of the wax-moth. These are often found at the base of the cells, where they often so web the young bees together that they can not emerge from the cells, in which case the mature bees are obliged to cut the comb away in order to remove these bees fastened together, webs and all, from the hive. In doing this these holes are made, after which they are left as they are till a yield of honey comes of sufficient amount to cause the bees to secrete wax, when, as a rule, these holes are built full of comb again. The next reason I should attribute to the "cross-sticks" which are nearly always used in box hives. Passageways are nearly always left around these sticks, to a greater or less extent, and these were thought, in days gone by, to be of great advantage along the line of the safe wintering of the colony, as the cluster of bees could contract during extremely cold weather through these without the bees being necessitated to go around the combs or becoming chilled where but a few hundred were in the spaces of comb at the outside. This led to the cutting of holes through the combs in frame hives every fall, to be filled up again the next season, or filling these holes with painted shavings so the bees would allow them to remain open. As these holes in the combs proved to be a nuisance in more ways than one, the Hill device was brought out, which is a series of curved sticks held together with a piece of hoop iron in such shape that the bees can pass under these sticks and over the top-bars of the frame, this answering every purpose of holes through the combs, in allowing the bees to pass from one space between the combs to another without becoming chilled and dying on the frozen honey.

MIXED RACES OF BEES BRINGS BEE-DIARRHEA.

Question.—Don't you think that the mixing of the different races of bees has brought what is known as "bee-diarrhea" into the country? Years ago, when we had only German bees, bee-diarrhea was unknown.

Answer.—I think the questioner is mistaken in his assertion that bee-diarrhea was unknown when there were only German bees in this country, for Quinby tells us all about the prevalence of this disease several years before the Italian bee was introduced, and the Italians came many years before the Cyprians, Syrians, Carniolans, etc. No, this trouble did not come to us through the importation of the different varieties of bees; and if it was not as prevalent years ago as now, which I think was the case, it was because the country was more protected from the fierce winds we now have, by the abundant forests then in existence, but now cut down to give place to the "onward movement of man." When father kept bees, some thirty to forty years ago, the woods came close around our dwelling, and the bees could fly every time the sun broke through the clouds, when the mercury reached 45° or above. But now every thing is different; for, four times out of five, when the temperature reaches the degree given above, during the three winter months, the wind blows so hard that no flight is accomplished, unless it is done at a great loss of numbers; hence the bees have to suffer on, or die, as the case may be. From careful watching for the past twenty years I am confident that the trouble known as diarrhea in bees is caused by confinement beyond endurance of the bees. The trouble is wholly incident to a continuation of weather unsuited for the flight of the bees, and is more of a mechanical nature than of a disease. Many things may conspire to shorten or lengthen the struggle for existence, such as bad food, great dampness, weak constitution, etc. Any of these may make the struggle short, and the reverse of these may vary all the way from successful wintering to a long tedious hanging-on to life that ends in spring-dwindling with barely a building-up, to try the same thing over again the next winter. With no return of balmy weather, no flash of the wing in the sunshine, and no chance of voiding the fæces outside of the hive, the end must come sooner or later, and for these reasons I can not see how the word "disease" fully covers our wintering troubles.

Heads of Grain, FROM DIFFERENT FIELDS

CIRCUMVENTING ANTS.

I see that some of your subscribers are troubled with ants. I was traveling a good many years ago, and late one evening sought the hospitality of an old farmer living in the country, fifty miles from the railroad. His family were very primitive people, and, though in good circumstances, lived very simply. As we went to supper I noticed a small wad of lint cotton tied around each of the legs of their safe. I was inquisitive enough to ask what was the purpose of that, and was told that it was done to keep the ants out of the safe. I thus learned that ants can not or will not travel over loose lint cotton.

KEEPING OFF CHICKEN-LICE.

From an old African slave who used to belong to a very intelligent planter, I learned that poultry can be kept free from vermin by the very simple device of providing sassafras poles for perches. I have tried this scheme for two years, and, while my neighbors' chickens and premises have been overrun with chicken-mites, mine have been entirely free from this pest. I suppose that the strong aromatic odor of the sassafras is disagreeable to the insects.

Columbia, Miss., Dec. 11. NOVICE.

THE FLANSBURGH SCRAPING-TABLE, AGAIN.

The specific use of the box C, on page 911, Dec. 15th number, on legs, is to hold the scrapings, and also to hold the shelf A, on which to set the screen bridge B, to scrape sections on. The bridge is a separate fixture, and the shelf is a solid board with no hole, as your artist shows. I have a hole cut through mine, however, at my right, near the end, to set a glue-pot over, and a lamp underneath, to keep the glue warm when glassing sections of honey for the New York market.

You inquire in your footnote to my article whether the fine particles do not fall through the screen on the lap. No, not on the lap. The fine particles, and the coarse ones too, for that matter, go through the screens on the shelf; and when the scrapings accumulate too much I lift it up and brush them off into the box C. The shelf should have no *square* cut through it and the screen laid over it as the artist has made it appear in the engraving; else, of course the particles would go through on the lap. H. J. FLANSBURGH.

So. Bethlehem, N. Y., Jan. 10.

CARP—[illegible] UP TO DATE.

We have had a great haul of carp this week—or rather on Christmas day and night—when on two fishing grounds there was taken five tons of fish—mostly carp. It is only a few years since Doc Howells, then Fish Commissioner for the State, stocked the Maumee with carp, and this is the result. The greed of the great fish-houses has nearly destroyed our pickerel, sturgeon, white fish, by blocking up the mouth of the river and preventing the fish from getting on their spawning grounds. The result is that now, after having destroyed up-river fishing, they have no fishing in the bay for themselves. The carp, which is so poor a fish that [illegible] not want any in his dish, is all there is left to take the place of our pickerel; and the reason they survive is because they are essentially a grazing fish, and love to burrow in the mud, grass of the river, and so are [illegible] of home, and do not have to run the gauntlet of the pound fisherman's nets. The fish caught on Christmas were fat, and ready to breed. One large one of which I had a taste, had about three pounds of roe in her. The fish at this season of the year are very good eating, and it seems to be the only fish that is likely to escape the destructive pound fisherman, and give us up the river a taste occasionally of fresh fish.

Perrysburg, O., Dec 30. G. A. ADAMS.

ST. JOSEPH, AGAIN.

Just as I expected, Dr. Miller. Did you ever know any thing or anybody who was so perfect that some chronic pessimist would not be airing the bad if you ventured to speak of any good qualities? You probably remember that they called Jesus a "glutton and a winebibber;" but notwithstanding this, some saw in that same Jesus the highest exemplification of perfect manhood the world has ever known.

It is reported of Carlyle, that, while listening to the praise which an American was bestowing on the river Rhine, he remarked, "Yes; but it is full of dead dogs." The American, who was a jovial and happy genius, replied, "Yes; and you can see nothing but the dead dogs."

That is the way with some people, and I presume they are more deserving of pity than blame. However, if you have read the *American Bee Journal* carefully you know that I long since condemned gambling on the fair-grounds, and I further stated that my name would not again appear in connection with the fair while this gambling was permitted.

To be frank with you, it was a matter of curiosity to me to know where this institution of gambling secured all its patronage. I felt sure that the *good* people of this city would not countenance any thing of the kind. It is all clear to me now. The patrons came down from Iowa, where they run race-tracks the year round, and build up towns around them. Perhaps our Iowa friend was a little ashamed of this, and this accounts for his name being kept in the background. Where did that dramatic pessimist get all of his information, any way?

Now, Dr. M., do you think it just the thing to rush into print with such a sweeping charge against the morals of this fair city without even making an effort to learn whether or not the statements were overdrawn? However, we can stand it, as our shoulders are broad; but I am greatly concerned lest the fellow up in Iowa, with no name, who can see only the "dead dogs" should feel so bad about it. But you and the readers of GLEANINGS should not lose sight of the fact that the great World's Fair had its "Midway" with its reputed half-nude women and other vices and immoralities, but it was none the less an illustration of the grandest achievements of humanity. No one, however, who visited the fair was forced to patronize the fakes of the Midway unless he had a taste for that kind of amusement (?) and therefore could not stay away. The present fair-board are not all of St. Joseph; and our good Iowa friend with his overshocked morals can come to this city and not see any of the races or gambling, unless he has a morbid desire to witness that kind of thing. However, "Let him that is without sin cast the first stone."

EMERSON T. ABBOTT.

St. Joseph, Mo., Jan. 14.

HIVING BEES ON SUNDAY.

Is it right to hive bees on Sunday? Or is it *necessarily* a work of mercy or charity to hive bees on Sunday? Couldn't bee-entrance guards be used? Wouldn't it be more in keeping with the fourth commandment to divide a swarm of bees on Saturday than to ask our man-servant or our maid-servant, our son or our daughter, to remain at home from church to watch the bees lest they swarm in our absence?

Tunnelton, W. Va., Jan. 11. W. E. DEAN.

[My good friend, of course you will recognize that there are probably extremes on both sides in regard to this matter. I have heard of people who let a large swarm of bees, that came out early in the season, go to the woods and be lost, because the bees happened to come out on Sunday. I have known a good many more, however, who did not really like to go to meeting any way, and who thought the excuse that the bees might swarm in their absence a very good reason for staying at home from church during the greater part of the swarming season. If we are honest and conscientious in striving to do that which is right in God's sight, and call in a little plain common sense to direct us, I do not think we shall go very far out of the way. Dividing in order to prevent swarming is a partial remedy; but when bees get a swarming mania it seems to be of but little avail. Ernest tells me that he considers bee-entrance guards of very great benefit—that is, they will prevent swarms from going off to the woods, temporarily at least. Where there is a considerable number of bees, and they have been swarming pretty freely, say on Friday or Saturday, I should think it prudent or right for some member of the family to remain to look after the bees; and I would advise changing around so that no member of the family may be entirely absent from religious services. Or if one can not go in the day time, let him go in the evening; or let one go to the Sunday-school and another to church.] A. I. R.

REPORT WITH A MORAL.

I commenced the season of 1893 with 180 hives, mostly in fair condition, and my returns were 32,600 lbs. of extracted honey, and 300 lbs. nice yellow wax. I lost 50 colonies by robbing; I had an inexperienced man, who did not know when they were robbing. J. L. GREGG.

Tempe, Arizona, Jan. 15.

LATE MATING OF QUEENS.

Our own experience is very similar to that of Mr. Replogle, as given on page 9, and we are *very* sure that the thing set forth by Guenther is correct. We have handled bees over 50 years.

Syracuse, Kan., Jan. 5. JAMES H. WING.

TWO NUCLEI IN THE SAME DOVETAILED HIVE, AND WITH THE SAME ENTRANCE.

I have been using, last season, the eight-frame Dovetailed hive for two nuclei in rearing queens, as mentioned on page 807 of GLEANINGS, but with the entrance to each in the same end of the hive; and out of ten or twelve so arranged I lost only one queen. F. M. TROUT.

Crete, Neb.

REPORTS ENCOURAGING

Reports Encouraging and Discouraging, if all were published that come in, would take too much room. As we like to know what others have done, we have decided to put in all the reports in this style, that come. S, in the first column in the table, stands for "Spring Count;" F for "Fall Count;" E for "Extracted Honey," and C for "Comb Honey." The rest will be plain.

	Col's	Honey	Price	Season.
Joel Hiser	S 20	E. ——	—	Poor.
Deweese, Neb	F. 40	C. 500	—	
E. Stahl	S. [illegible]	E. 16500	—	Good.
Kenner La	F. 350		—	
W. G. Snodgrass	S. 50		—	Very bad.
Montrose, Mo	F. 53		—	
Henry L. Wurl	S. —	E. 132	—	
Mayville, Wis.	F. 7		—	
Francis Ortt	S. 31	E. 250	—	Good.
Darling Road, O N. T.	F. 52	C. 300	—	
D. N. Cummer	S. 27	E. 2630	—	Good.
Florence, Ont	F. 54	C. 8	—	
Robert Douglas	S. 9	E. 389	16 18	
Greenlaw England	F.	C. 419	20 21	
J. E. Schreckengost	S 4		—	Good.
Kittaning, Pa	F. 16	C. 500	20 25	
J. W. Wilson	S 36		—	
Roslin, Ontario	F. 50	C. 4500	—	

BEGINNERS QUESTION BOX

BY E. R. ROOT.

W. W. C., of D. C., asks whether, in warm spells of winter weather, bees will rear brood. *Ans.*—Yes, almost invariably—especially toward spring.

C. B., of Tex., would like to know how many pounds of starter foundation it requires to make 1000 lbs. of section honey. *Ans.*—We figure, on the full sheets, 4¼ sections, about 10 pounds; for smaller sheets, proportionally less.

J. P., of Ia., asks, "If ¼ as a bee-space between super and frame is right, why not between top-bars and frames above?" *Ans.*—There ought to be the same bee-space in both cases; but practically there is a slight difference in the Dovetailed hives as we now make them. We are not able at present to equalize the spaces exactly, without running into a snag still more objectionable.

S. S., of Wis., asks, "If the weather is warm enough for the bees to fly during winter, would you take the packing from the top of the frames and give them all a chance for a cleansing flight, or let them alone?" *Ans.*—Let them alone, by all means. If you are sure the bees have stores the previous fall, do not tinker with them till next spring.

C. & C., of N. C., writes that they left their supplies on the hives during winter because they feared that, if they took off the supers, the bees would not have enough to winter on. They ask if they should be removed next spring. *Ans.*—Yes; otherwise the bees will soil the sections; and, besides, the brood-nest should be reduced to the smallest capacity during the brooding season, so as to conserve the warmth.

J. P. B. wants to know, 1, whether a hive 21 x 13 x 11 is too large to secure good results; 2, To obtain a big supply of bees early, should they be stimulated by feeding? 3, Do bees gather any stores from corn-blossoms? *Ans.*—1. No; but it is usually best to have the dimensions standard, so as to correspond with regular goods. 2. Yes, it is desirable to feed the bees a little every day, if they require it in the spring, or when the weather is settled enough so that they can fly almost every day. Feeding too early to stimulate is bad. 3. This is a disputed question. They do gather pollen from corn-blossoms, but it is doubtful whether they get any honey generally from them.

R. F. R., of Va., asks, 1, Is it a good time to introduce to or change the queen of a colony when the bees swarm? 2. When both honey and increase are wanted, is it a good plan, after swarming, to divide the old colony into nuclei? 3. He would like to have us give a good plan to manage seven hives in spring for comb honey. *Ans.*—1. Yes. 2. Yes, if you are willing to spend a little money in feeding up your nuclei, you may divide to advantage; but if honey is your object, and you wish to proceed as economically as possible, we would advise you to let nature take its own course. 3. It would take too much space to give even an outline in this department, and we shall have to refer you to the text-books.

W. T. H. wants to know, 1, whether our foundation-machines will make both brood and surplus foundation; 2, If bees are put in the cellar, a few yards from their old stands, and then allowed a flight occasionally during warm days, will they go back to their old stands? *Ans.*—1. Our standard 10-inch mill is made so as to make both brood and surplus foundation, a change from light to heavy being made by adjusting the screws, about as you squeeze wringer-rolls down to dry the clothes out more. 2. When bees are put in the cellar they should be kept there, and not allowed a flight until they are set out permanently next spring. Experience has shown that it is bad policy to move bees in and out of the cellar every warm day.

F. L. S., of Minn., wants to know what is the net profit per hive of bees in California. *Ans.*—We can make only a very poor guess. In a fair season a fair colony under good management, in a fair locality, ought to yield 75 or 100 lbs. of extracted honey, and 50 or 75 of comb, although these are conservative figures. Extracted in large lots will net the bee-keeper from 4 to 5 cts., or $3.50 per colony. The comb would net him about 10 or 12 cts., or $5.00 per colony. From this must be subtracted the cost of managing the bees, cost of foundation, cost of cartage to the nearest railroad station or market, cost of square cans for the extracted honey, or shipping-cases for the comb honey—cost of sections, interest on the money, losses from absconding swarms, etc. This answer, at best, is unsatisfactory, and we therefore call upon Rambler to help us out.

F. M. McC., of Ark., desires to move 80 colonies in Dovetailed hives to Southern Ohio. *Ans.*—We would fasten the bottom-boards and close up the entrances. We would then, in place of the covers, tack on rims, made out of ⅞ stuff, of the same width and length as the hive, outside measure, and 2 inches deep. These rims should be covered with wire cloth or cheese-capping. If you are going to move your household effects also to Ohio, you had better put the hives in one end of the car, and your goods in the other end; it will be safer for you to accompany the car, as the jostling and bumping will disarrange the hives. To partially remove the jar, it is a good plan to strew the bottom of the car, where the hives are to be placed, with four or five inches of straw. We omitted to say any thing about fastening the frames, for we assume that your bees are on the Hoffman frames, which require no fastening. If not, we would use the spacing-sticks illustrated in our catalogue.

E. J. C., of O., asks how many bees it will take to gather a pound of honey per day. *Ans.*—It all depends upon the source from which honey is coming—that is, the amount of flow. From basswood, yielding at its best, a single colony will gather from 3 to 30 lbs. of nectar per day—probably 3 to 7 would be a fair average. A good fair working colony—that is, the bees themselves—weighs from 5 to 8 lbs.; and as we know from careful experiment that there are about 4500 bees in a pound, there will be anywhere from 20,000 to 40,000 bees. This number should be reduced anywhere from a third to a half, so as to include only the working force, or that force that brings in the honey. We may assume, then, that it takes, on this basis, anywhere from 15,000 to 25,000 field-bees to gather 3 to 5 lbs. of nectar from basswood; or, to get right down to your question, 5000 bees all day will gather a pound of nectar, and that "all day" may mean 12 or 14 hours. From clover the bees will be able to gather less than half as much per day. Mr. E. E. Hasty figures that from 3500 to 7000 bees can carry a single pound of nectar. Averaging the number at 5000 it would seem that either there is a less number of working bees or else they make only a few trips to the fields. During basswood, bees are generally loaded down.

Now, who will tell us how many loads an average bee, under an average flow of basswood, will carry in a single day of 12 or 14 hours, and who will straighten out our figures?

TRADE NOTES
BY EARNEST R. ROOT.

THE CORRECT DISTANCE TO SPACE FRAMES.

A RATHER STARTLING STATEMENT.

By Major Shallard.

There is a great diversity of opinion among all sections of bee-keepers about this most important point. Each party seems to follow some "rule of thumb," or else blindly follows the lead of some other person. In America—that home of progressive bee-keeping—we find the bee-keepers spacing all the way from 1⅛ inches to 1½ inches from center to center. The frames used to be cut ⅞ of an inch wide, but now they range from that to 1¼, and from ⅜ to a full inch thick. With the old ⅞ frames spaced 1½ inches from center to center, the distance actually between the frames was ⅝ of an inch. The trouble then was, that the bees would build these together with brace-combs. To get over the brace-comb trouble, the Americans tried inch-thick top-bars; and some, wishing to "go one better," made them also a full inch wide. They claim that the deep wide top-bar does away with burr-combs. I dispute this point. I have had these frames in use for the last seven years, and have thoroughly tested them, with the result that, in my opinion, the amount of space between the bars, and not the thickness of them, controls burr-combs.

Perhaps I can explain my position better from another point of view. The depth of a brood-cell is $\frac{7}{16}$ of an inch. Two of these, back to back, make a comb ⅞ of an inch thick. If the cells are any thing over this depth, the queen can not deposit eggs in them. The width of the frame, and the distance they are spaced apart, govern the depth of the cells; therefore if you use a wide frame in the brood-nest, either the queen can not use the cells, or —what really does happen—the bees keep the level of the cells below the level of the frames.

To leave the subject of wide frames, and come to the matter of spacing the ⅞: If these are spaced 1⅛ from center to center, the comb will be kept just level with the frames. If the distance between the frames exceeds this, the cells near the top-bar will be drawn out by just that distance, and filled with honey, and the space left between the surfaces of the comb—not the frame—will be found to be just a little more than ¼ inch. Does not this prove that, according to the bees' ideas, that space is sufficient? The space which contains brood below these elongated cells will, of course, be greater; but as the season goes on, and the queen goes off laying, the honey-cells will be extended. Here comes in the objection to wide spacing. The brood-nest of the hive should be kept for the brood only. The honey should go into the top story. By wide spacing, a large percentage of the honey is deposited in the brood-nest, and it is always a growing amount. The bees get the habit of depositing there, and by degrees crowd the queen, so that she has not sufficient room for egg-laying, and they get disinclined to enter the top story at all. I have thoroughly tested this matter. I do not speak from theory, as I have all my frames spaced 1⅛ from center to center. The combs are built on full sheets of foundation, on wired frames. They are exactly the thickness of the frames, and I do not think any one can show a finer lot.

I find here that I have missed a point which I wished to ventilate. The bees always build brace-combs if the space is more than a full quarter of an inch; and by careful experimenting I have proved that, at that width, they build least; in fact, they build scarcely any at all. My section-crates have a slatted bottom, and I do not use a queen-excluder for sections of any sort. If I keep the bottom of the crate a full quarter of an inch from the top of the frames, I get scarcely any burr-combs, and can lift the crate off clean. If the space exceeds that mentioned, the burr-combs are built freely, and I have a sticky mess when the crate is taken off. If, on the contrary, the space is less, the crate is stuck down with propolis.

I have experimented largely in this matter, and am fully satisfied that a full ¼ inch is the proper bee-space, and that spacing and not thick or wide top-bars is the secret of burr-combs.

Glenbrook, N. S. W., Dec. 1.

[With us, the wide and thick bars do prevent, almost entirely, burr-combs but not in all cases *brace*-combs—those spurs of wax between the bars—and this is confirmed by scores of bee-keepers. Possibly your long seasons, warmer climate, and locality, cause the difference in results. About that spacing: If there are any bee-keepers who make a practice of spacing all their combs to 1⅛ inch from center to center, we were not aware of it. The majority space

1⅜, a few 1¼, and the rest 1½ inch. You have suggested a rather new idea to us on the 1⅛-in. spacing. If that distance will make the old ⅞x⅜ top-bars proof against brace and burr combs, it will effect quite a saving in the cost of frames. We must confess, however, that we are skeptical; but as the idea comes from a large and practical bee-keeper—one who, we believe, has nearly a thousand colonies—we should give it a careful and unprejudiced trial. In the mean time, our American bee-keepers have said that 1¼-inch spacing was too close. What will they say of 1⅛ spacing? Who is there among our readers who can affirm or disprove Major Shallard's point?—Ed.]

GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

O Lord, what shall I say when Israel turneth their backs before their enemies?—Josh. 7: 8.

Eight extra pages this time, and, for aught we know, for several issues to come.

Our colonies under telescope covers keep much drier and nicer than those under other sorts of covers.

We have had so much printing to do lately that we have been running night and day, and are now nearly caught up.

Our symposium on the subject of bees and fruit will be continued in our next issue. It is hardly time to hear from our correspondents so as to get their articles here in time for this present number.

We learn with *pleasure* that Bro. York is *also* having a flood of renewals for the *American Bee Journal*. This indicates that bee-keepers are not yet discouraged, and that they have hope for the future.

Those new sections, sanded and polished on both sides, are taking like hot cakes. This year's business is starting out unusually brisk. In fact, we have been obliged to add more help, new machines, new blower, more line shafting, etc.

We call special attention to Major Shallard's statement, in Trade Notes, viz., that top-bars ⅜ thick and ⅞ wide, spaced 1⅛ from center to center, will prevent burr-combs more satisfactorily than any other arrangement. We ask, Is this true? and is 1⅛ spacing practicable and possible in this country, for all conditions and times in the apiary?

We have sent and got Dr. Mason's Given foundation-press, and are experimenting with it with the view of putting them on the market at some future date. By the way, can any of our readers tell us whether the widow of D. S. Given is still living? We do not wish to take advantage of a good thing without making some satisfactory arrangement with the parties who first brought it to light.

Our list of subscribers is not for sale at any price. Nearly every spring we are asked what we charge per 1000 names. We do not wish those who favor us with their subscriptions to be loaded down with circulars and other stuff, *ad nauseam*, without their consent. We do, however, sell lists of our catalogue names of live bee-keepers at $2.50 per 1000, printed from type.

We hope our readers will not get the impression that, when an article does not have a footnote, it does not receive our editorial indorsement. On the contrary, such an article is frequently so complete in itself that there is nothing we can add to it by attaching a footnote. We have several very valuable communications in this issue that have no footnotes whatever, and yet we consider them just exactly as good as those that have our comment attached to the end.

A correspondent has sent us some pressed specimens of yellow-jasmine flowers and leaves, a poisonous honey-plant. The flowers are bell-shaped, light orange-yellow in color, one inch long, and about ½ inch wide at the widest part of the bell. The leaves are lanceolate, or lance-shaped, and are from ¾ to 1¼ in. long. If we could get some fresh specimens we should be glad to make an engraving, so that all of our readers in the South may be able to recognize the plant at once.

Bro. York, of the *American Bee Journal*, calling attention to the fact that we said that Prof. Cook had been writing more sugar-honey articles for the agricultural papers, says Prof. Cook has not written for such papers for months. That we did see articles on the subject of sugar honey, signed by Prof. Cook, we are certain; but we now think they must have been reprints of old articles not credited that friend Cook wrote a year or so ago for the apicultural journals. We have mislaid the papers so that we can not now refer again to them. You see, when a thing once gets started it is hard to stop it. We accept the correction with thanks, and hereby tender our apology to Prof. Cook.

We are getting quite a number of inquiries asking whether we will not take queens in payment for advertising, or articles for Gleanings in payment for supplies. We have arranged for all the queens that we can possibly use for another season; and in justice to our customers we furnish queens only from breeders who we *know* can produce just as good queens as we do, or even better. Other breeders may do just as well; but we must have the positive knowledge before we undertake to receive queens on such a proposition. As for contributed articles, we never make any promises. Manuscripts may be sent, and if meritorious they will be received at whatever they are worth to us.

A SHORT time ago a correspondent in the South hinted that we were putting in the big reports regarding the honey-yields of Florida, but not the other kind. We were not aware that we had made any such discrimination. If any locality is not accurately represented, kindly correct it, sending a short pithy article; but do not accuse us of dishonesty, nor call the other fellow a liar. You want to be sure to bear in mind that there is very often a marked difference in localities only 10 or 15 miles apart, and particularly so between different counties and between different States. Don't imagine that *your* county invariably represents the same conditions that will be found in neighboring or similar counties of your State.

WE are often asked what typewriter we would recommend. The only cheap one-handed machines that we consider worth any thing are the World, which we used to sell, and the Merritt. The last one does the nicest work of any. But there is none of these one-handed machines that will do work much if any faster than the pen. If one wants to do any considerable amount of correspondence, and yet can not afford to pay much over $25.00 or $30.00, we would advise such to write to any of the typewriter exchanges for a second-hand Remington, caligraph, Hammond, or any of the second-hand machines. You can not expect any *one*-handed machine to do work, as a general thing, faster than the pen. If one can write a good plain hand, he had better let the cheap one-handed machines alone.

HONEY FROM SWEET CLOVER.

DURING my visit at Salt Lake City I wrote up at length in regard to the beautiful honey gathered from sweet clover that thrives so luxuriantly out on the sandy alkali plains, where no other plant could flourish on account of alkali. This honey is not only equal to any other produced in the world, but it is about the whitest and finest-looking honey in the world. The only respect in which it is inferior to the white-sage honey of California is, that the sweet-clover honey candies readily on the approach of cold weather, but the sage honey does not; and when candied it is, perhaps, the whitest candied honey gathered from any known source. Well, just now I am greatly pained to find that some of the food commissioners think, without analyzing, this honey of Salt Lake City is sugared, probably because of its extra fine appearance. In fact, some specimens of candied honey are almost as white as snow, or as white as white sugar. One who is at all conversant with the plant—sweet clover—will have no difficulty at all in recognizing sweet-clover honey. It has a faint or very delicate flavor, reminding one of the smell of sweet clover while in bloom. If you bruise the foliage of the sweet clover when the plant is growing rank in the spring, you will also get a strong perfume, quite like the delicate flavor of the honey. Sweet-clover honey ought to be as readily identified as basswood and clover; and it is a burning shame that the friends who are producing and marketing this beautiful product should be persecuted by having some stupid official pronounce it or even suggest, that it is not pure honey. A. I. R.

THAT STATISTICAL SCHEME FALLS THROUGH.

YOU will remember we proposed a scheme for ascertaining the amount of comb honey produced in the United States, from the average number of sections sold during any average year. Well, the scheme went along swimmingly until one of the manufacturers declined to give his output, for reasons which he considered good and sufficient. In addition to this we have been receiving lately letters that read something like the following, which we produce as a sample:

> I see you are going to set Dr. Miller at guessing how much comb honey there is produced in this country. Here is something for him to try his hand at; and if he can guess it he must be a genuine Yankee. Two years ago I bought of you, through A. F. Cate, of Fallbrook, 40,000 sections. The season following I got about 50 lbs. of comb honey. Last season I got some more. I now have over 30,000 of those sections on hand, and empty. How much section honey did I get last year? And I am anxious to know how much I shall get in 1894.
>
> Wildomar, Cal. I. S. CROWFOOT.

In the first place, we can not get at the annual output of sections unless all of the manufacturers give their annual output; in the second place, even if we could obtain the full number of sections made, circumstances something like those pointed out above might make the result but little better than a good guess.

EFFECT OF DRY CLIMATES ON QUEEN-CAGE CANDY; SHALL WE RETURN TO THE WATER-BOTTLE?

IN the *American Bee Journal* for Jan. 18 is a valuable article from W. A. Pryal, on mailing queens long distances. He writes of the difficulties in making a candy just right so that it will remain just right, or uniformly soft, in the various climates to which the queen-cage is subjected while in the mails. He refers to the very dry atmosphere of California and its bad effects on the candy, and suggests that, as the food can not always be made to meet the varying conditions, we return to the water-bottle. He says:

> I have never yet received a queen dead, that was shipped in a cage that had a reservoir for water. No matter how hard the candy may have become

through heat or otherwise, the bees would manage to eat all they required of it, if they had water handy. Queens that were confined in a cage that contained a supply of water seemed to be healthier than those queens that are provisioned with a hard candy.

We suspect there is considerable truth in this; and as queen breeders and shippers we have concluded to give the matter another trial during the coming summer. Years ago, when we used exclusively the hard candy, we considered the water-bottle a necessity; but when the Good candy was introduced, the bottle was dropped, principally because it was not always possible to adjust the small piece of candle-wicking in the cork of the bottle in such a way that it would not feed the water too fast, and thus either wet the candy up too much or run out entirely, and leave the bees with dry candy and *no* water. We made a few experiments last summer, but somehow the water leaked out in some of the cages, even before they left our own hands. The queens had to be transferred to other cages, and were then sent on the usual soft candy, without any water; but they died all the same, for they went clear to Australia. We suggest that the Atchleys commence experiments, not only for their own personal advantage, but for the benefit of the brotherhood of queen-breeders and their customers. Perhaps there is nothing more annoying than to have a hive just ready to receive a queen, and then, when her majesty arrives, the queen is found to have "gone dead." Some seasons our percentage of losses in sending queens long distances is practically nothing; and then, again, the peculiar conditions of climate, as Mr. Pryal points out, make a lot of trouble.

THOSE FOOTNOTES—THOSE EVERLASTING FOOTNOTES.

In the great flood of renewals that have been coming in during the last few days, it seems as if almost every one says, "Keep those footnotes going;" or, "Do not stop those footnotes if you want us to renew;" or, "I skip the articles and read the footnotes;" and, again, a writer whose letter is in our hands, says, "Do not, under any consideration, think of stopping them. Sometimes the footnote has more pith and life to it than the article." In relation to the last quotation we wish to say right here that it is not our purpose to absorb in the footnote all the meat or juice from the article. We simply intend to give it flavor.

Some of our older readers will remember we asked, years ago, as to the desirability of the comments, and the result was the same as above; but since the footnote mantle had fallen upon younger shoulders we had a curiosity to know whether they were still desirable, and if not we expected to drop them. We are satisfied, and shall keep them a going.

Now, dear reader, it is not fulsome praise that we seek—no, no, no—but the best good of you all. If any one department should be lopped off and another added to the journal, please let us have your commands. "Not to be ministered unto, but to minister;" and, again, "The greatest good to the greatest number," are mottoes that we try to keep before us.

Perhaps it will be well to add, that the changes made commencing with the issue for Jan. 1 have been most heartily indorsed by prominent bee-keepers and other lesser lights. If we are sure of any thing, we know our readers are particular about having only the very best communications submitted to their perusal; on the principle of the survival of the fittest we may say that we have room for only about half the manuscripts that come to us.

Perhaps we can illustrate how we sift. A. I. R. does not pretend nowadays to look over the bee-journal exchanges, and quite a number of other exchanges that he used to read with pleasure. We run through them just as he formerly did. When we come to an extra good article we take out our blue pencil and mark around it; and the pith itself we underscore by putting a blue line under each line of type. These exchanges are put on his desk, and at his leisure he simply looks for the blue marks.

Now, then, we go over the manuscripts in much the same way. A large part of those we use, we cut off at both ends; and if an article is not trimmed down at all, except a few from our regular contributors, it is an exception. After sifting over a great pile of manuscript, we give you, as nearly as we can, in the language of another, the "cream," and the cream is put all together in as compact a space and as readable type as possible. In other words, we try to give you the benefit of our "blue marks."

MR. HEDDON, AND HIS TEACHINGS ON ADULTERATION.

Mr. Heddon is reported, in the last *Bee-keepers' Review*, as saying, in a paper which was read at the Michican State Convention, that the hue and cry now being made against adulteration was doing far more damage than the actual adulteration itself, because the adulterators are not so foolish as to put on the market an unpalatable compound.* He denounced, also, the change in the constitution of the Bee-keepers' Union, whereby the Union is enabled to prosecute adulterators, and further declared that, in the present state of the art of chemistry, analyzation was not sufficient to prove adulteration, and therefore argues that, if we can not *prevent* adulteration, the best thing to do is to keep still and let the evil go on.

This is about the same line of argument he presented a year ago at the same convention; and after the opposition that was raised at the time, the reiteration of such teaching makes us wonder what he expects to accomplish. Does he not know that this, coming from a representative *bee keeper*, will give comfort to glucose-mixers? This idea in one way seems plausible, and we are sorry to see that one or two good men agree with him.

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* Yes; but they *are* foolish enough, as facts prove. Bad men always do foolish things.—Ed.

Saloon-keepers do not like temperance agitation, because they fear it will damage their business—if not immediately, at some future time. Honey-adulterators would like nothing better than to feel that their fabrications could not be detected from the genuine; and when we talk about ways and means by which they can be found out, they don't like it. *Apathy*, and a *sense of our helplessness*, is just what these evil-doers most desire.

There *is* a way to fight this evil of adulteration, and we can stem the tide of it, even if we *can't* put it down all at once. If we can not prosecute, we can give the names of the adulterators such wide publicity that the sale of their mixed goods will stop. See page 62. We affirm that the art of chemistry has now reached that state whereby satisfactory analysis for glucose can be made. We have only to point to the tests which Prof. Cook made upon three of the best chemists of the United States, with the result that they successfully detected every glucosed sample; and we pointed out on p. 63 of our last issue the simple alcoholic test; and the test by tasting is pretty reliable.

We happen to know that there is a considerable amount of adulteration, and it is being fostered by just such sentiments as Mr. Heddon gives expression to. This glucose-mixing is becoming more and more common under the apathy and sense of helplessness on the part of the bee-keepers, and the pure product of their honest toil has to compete with stuff so cheap that good honey has but little show, and so vile in quality that consumers say if that is honey they will never buy another drop.

Now we leave the question with our readers. If they want us to stop this "hue and cry" against glucose, drop us a line to that effect. We are quite willing to refer this question to the mass of our intelligent readers.

THE PROFESSOR'S ECONOMICAL SECRETS.

THE above is the title of a little book of 104 pages—small pages at that. It purports to be "valuable secrets in regard to new methods of farming." We quote from the circular:

> By request of hundreds of farmers, from all over this country and Canada, the Professor's Secrets are now published, and ready for distribution.
>
> The price has been reduced from $5.00 to $3.00 per copy.
>
> As a book it is very small, not filling a large pocket.
>
> As secrets—entirely "New Methods" in the education it gives—it is the biggest instructor ever printed—"a little wonder," filling the largest barns, granaries, and cellars, and that fills the purse, and the purse fills the pocket.
>
> It raises much bigger crops than the old way, and does it with much less labor; kills the vermin and weeds in advance (as the housekeeper kills the bed-bugs, the lice, and fleas in advance); guards against drouths and wet seasons in advance; instructs how to destroy Canada thistles (at little or no cost); how to clear land of brush and thorns, without any cost at all; how to raise 400 to 600 bushels of potatoes per acre without hoeing or weeding; how to raise 1000 bushels of onions per acre; how to raise 200 to 400 bushels of strawberries per acre; how to sow winter wheat so that it will not winter-kill, nor turn into chess, and produce a full crop.

Since I have given all the above free advertising, our friend should not complain. I may say, briefly, the plan of banishing the weeds is to plow shallow, and cultivate repeatedly, as soon as the crop is off, until all the seeds germinate; then plow quite deeply and turn them under just before frost. The same process is to get rid of insects and vermin. Canada thistles, brambles, etc., are disposed of by scattering corn, etc., and getting hogs to root them up. The method of draining your land without using tile is by surface drainage. Go on your ground after a rain, and draw the water off wherever you find it standing. Now, most of these things are good; but they are all more or less in general use, and none of them come anywhere near accomplishing the things claimed for them.

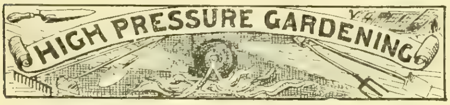
The new method of sowing and planting is to have every thing in straight rows, and do your cultivating by horse power. Effect of drouth is obviated by constant stirring of the surface of the soil. But what agricultural journals are there in the world that have not been advocating these methods year in and year out? The new method of making hay is to cut it toward night. If it rains during the night or next morning, the rain will be on grass and not on hay. I hardly need say that this is neither new, nor is it exactly true. The Professor says rain does not hurt grass when standing or cut. Some farmers may agree with him, but I think not very many. The new method of sowing winter wheat so it will not turn to chess (?) is simply by having so many furrows to carry off the water that the wheat can not be injured by so much wet, in connection with the cold weather in the spring, as to cause it to turn to chess.

The whole book is but little better than a humbug and swindle—that is, if one buys it with the expectation of getting any thing like what is claimed out of it. Furthermore, at least half of it is occupied by a very illiterate tirade against the political abuses of the day.

Besides the above "secrets," another smaller pamphlet of 20 pages, very large coarse print, is offered for $1.00. This is entitled "The Professor's Economical Secrets, or New Method of Saving the Potato Crop from Blight, Scab, and Rot." I supposed it would probably have some hint of new methods by using Bordeaux mixture or corrosive sublimate—not a word, however. Probably the author never heard of them. He commences by declaring that blight, scab, and rot, are caused by the hot sun. Potatoes grown in the shade, or in partial shade, are affected by neither; therefore the great secret for which we are to pay a dollar consists in planting potatoes in rows running east and west; but every other row is to be *corn*. The corn shades the potatoes, keeps off the hot sun, thereby preventing blight, and the roots of the corn take up the surplus moisture, thereby preventing rot. As scab is also the effect of the aforesaid heat, the row of corn is also to prevent scab.

I do not know how many of the friends have been misled or humbugged by these flaming circulars. I only know that the Professor has received $2.00 of my money. There is nothing in either of them worth copying. The older readers of GLEANINGS already know the position I have stoutly maintained for years past, that valuable information is never to be found with those who profess to have great secrets to sell for a certain sum of money.

John Platten, Universal Farmer, Fort Howard, Wis., is the man who professes to be so abundantly able to teach agriculture to the present age. If the Agricultural Experiment Station of Wisconsin has not already tried to teach our friend that wheat never turns to chess, even during a wet season, perhaps they had better take him in hand. Although this little book costs so much money for a few small pages of matter, yet the Professor finds space in it for "swear words," and that, too, when he is undertaking to teach a class of children.



SOME NEW TRANSPLANTING MACHINERY.

Till recently we have used iron frames covered with poultry-netting, mostly, for putting out celery, cabbage, and other small plants. A year ago we substituted notched boards for plants further apart. The notched boards do the business all right, but they are rather too slow, and they do not make a hole in the ground right where the plant is to be put. The poultry-netting frame is open to the last objection; and where two or more are at work with one frame, there is confusion and delay in moving the bars the boys use to sit on while doing their work.

The arrangements figured below enable us to work faster than any thing else we have yet used. Sticks with wooden pegs on at fixed distances are largely in use in the South for transplanting tomato-plants, and we have illustrated these in the tomato book. The objection is, they make but one row of holes at a time, and they also bother about dirt sticking to the wood. For some time I have been thinking of something made of glass or porcelain. The stopper of a vinegar-bottle (beg pardon for the illustration) answered very well, but they were expensive, and not easy to fasten in a board. Finally I found on our counters a little white glass drawer-pull. These can be put on with a screw; and by turning them upside down they make a nice imprint in the soil, and the dirt sticks to them very little. In the cuts below, at A you see one of these knobs screwed fast to a stick.

FIG. 1.

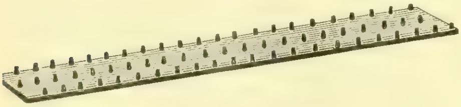


FIG. 2.

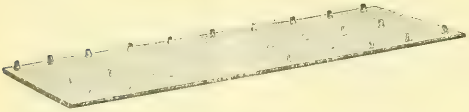
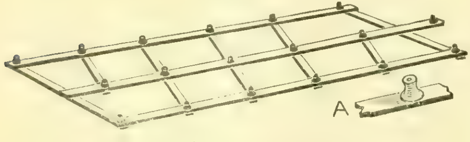


FIG. 3.



SPACING-BOARDS.

In Fig. 1 we have a board 6 inches wide and 5½ feet long. This is just right to mark out a bed covered by ordinary 6-foot sash. There are 3 rows of the knobs. They are spaced so that each one is the center of 6 others at equal distances from those around it, and they stand just 3 inches from each knob, from center to center.

Fig. 2 is a similar board for knobs just 7 inches apart from center to center; while Fig. 3 marks out the places 12 inches apart. We use Fig. 1 for transplanting radishes, cabbage, cauliflower, celery, onions, onion-sets, peppers, and tomatoes. We also use them for lettuce where it is twice transplanted.

Fig. 2 is used for transplanting all the above where they are *twice* transplanted. It is just right for Grand Rapids lettuce where it is mature—7 inches apart from center to center. It is exactly right for extra large cabbage, beets, celery, peppers, and tomatoes; also for spinach when grown under glass.

No. 3 is right for wax beans under glass; extra large cabbage-plants; celery to be banked up by putting boards between the plants while putting in the dirt; corn grown under glass; cucumbers; extra large Grand Rapids lettuce; melons; peppers under glass; potatoes ditto; spinach, for extra large; squashes; and tomatoes where you raise plants that bring a nickel apiece. It is exactly the thing for strawberries while bearing in the plant-beds, or where you force them under glass in order to get runners extra early. In fact, you can get a crop of almost any thing by putting them a foot apart from center to center, except vines that run. Of course, to do this the ground has to be very heavily fertilized. We have had considerable crops of extra early corn when put in our plant-beds exactly a foot apart from center to center. I should have said that No. 2 was designed especially for the new celery culture, where the bleaching has to be done without banking. If you do not find the knobs at your hardware store we can furnish them in quarter-gross packages at 40 cts. per package.

In using the spacing-boards there should be a boy at each side of the bed. The ground is nicely prepared by spading or forking; then the soil is sifted through a sieve such as I have described, putting the coarse portions and the coarse manure at the bottom. The fine clean soil is then leveled with a rake, then patted down evenly with the back of either boards 1 or 2. When the surface is as smooth and level as a planed board, you are ready to mark out the place for the plants. The two boys, one on each side of the bed, take hold of the board and press it into the soil the full length of the knobs; then lift it out carefully, and move it over until one of the knobs goes into the last row of holes, and then move right along, and the whole bed is very quickly spaced, and the holes made for the plants. With a bundle of plants in one hand they can be dropped and pressed in with the point of the finger faster than you would believe unless you had seen it tried. All the covering needed for most plants is to give the bed a thorough drenching with the sprinkler, or a hose with a sprinkler on its end. Settle the dirt thoroughly around the new plants. If your plants are taken up right, quite a lump of rich soil will adhere to the roots. This lump of soil will drop right into the hole made by the knobs. Not one in a thousand should fail to grow if every thing is right; and the appearance of a plant bed with the ground thoroughly covered, and no vacancies, the plants being as thick as they can stand without crowding, is a satisfaction of itself.

If you make much use of board No. 1, look out they are moved into a new bed spaced with No. 2, just as soon as they begin to suffer from crowding; and if No. 3 is to be used at all, proceed in the same way. With these three boards you can do all your planting. We have beets now coming up over the way in the greenhouse in just beautiful shape, planted with board No. 1. We set strawberries with board No. 2, but they are too close together. In a few days we shall move them again and put them in a bed spaced with No. 3.

Now, don't you agree with me that I have worked out a very nice little arrangement for putting the plants in with mathematical precision? In fact, it is the same kind of mathematics we find in the cell of the honey-comb. Each plant is the center of a little hexagon, with plants all around it.

Perhaps I should add, that board No. 2 is a 14 in. board planed down to ¾ in. in thickness; and to prevent warping there are several ⅝ battens across the back of it at intervals. No. 1 is simply a ⅞ board. No. 3 is made of slats 1½x⅜. We prefer slats because they are lighter than the board, and a board so wide would be liable to warp.

Another thing, in setting plants a foot apart we often have to dig quite a cavity—this is the case with strawberries where we take them up with transplanting-tubes. Well, after having made this cavity it is not easy to get the plant just where the knob made the mark; but by pressing No. 3 into the bed so the slats of which it is made also make their imprint, you have a guide for placing the plant exactly where it ought to stand.

OURSELVES AND OUR NEIGHBORS
BY A. I. ROOT.

> And as Moses lifted up the serpent in the wilderness, even so must the Son of man be lifted up; that whosoever believeth in him should not perish, but have eternal life.—JOHN 3:14, 15.

In the 21st chapter of Numbers there is a brief little story told us. It is told in a very few words, and with little or no comment, and yet it teaches a wonderful lesson. Let us take it up verse by verse.

> And they journeyed from mount Hor by the way of the Red sea, to compass the land of Edom; and the soul of the people was much discouraged because of the way.

Let us consider that God was leading this people. In fact, they had abundant evidence of it, not only by a succession of miracles, but, if I am correct, by an ever-present miraculous manifestation—a pillar of cloud by day, and a pillar of fire by night. The people all knew that they were under God's immediate and direct guidance, and yet they became restless and impatient. There is something peculiarly touching and pathetic in that expression, "The soul of the people was much discouraged because of the way." In the margin we see the word might be translated "grieved" or "shortened." Neither did they keep their discouragement to themselves. Let us read the next verse.

> **And the people spake against God, and against Moses, Wherefore have ye brought us up out of Egypt to die in the wilderness? for there is no bread, neither is there any water; and our soul loatheth this light bread.**

The people murmured and complained. They even "spake against God." Let us go back a little. They had formerly been slaves under Pharaoh. They were a wonderfully strong, vigorous, and athletic people, those Israelites. Pharaoh had discovered it, and he had discovered, too, that they were men of courage, and might prove troublesome if he let them get the upper hand; therefore he gave them the very hardest tasks—perhaps kept them on public improvements; and for fear they might rise up and rebel they were ground down and kept down. Very likely it would not have been possible to keep them in such subjection otherwise, for they were a rebellious and stiff-necked people, as we are told. But even while in this abject slavery they were under God's immediate care and notice. Without question, deliverance would have come *before*, had they not been rebellious and contrary toward him. They were descendants, we are to remember, of the brethren who used their younger brother Joseph in such a cowardly way. God doubtless saw fit to let them writhe and groan under the bondage of Pharaoh; but in his own good time, however, he sent them deliverance through Moses by a series of wonderful miracles; and with scarcely an effort on their own part they were delivered from the hand of Pharaoh. Surely they must have known what *liberty* meant, after their great trials. They were free, out under God's blue skies, and rejoicing in his sunshine. Nay, more than this. They were told of a promised land, even the land of Canaan. By the way, what has become of that good old hymn of our childhood—

O Canaan, bright Canaan!
I'm bound for the land of Canaan?

These people were on the way to the land of Canaan. The way was not easy, however, and they were called upon to push their way through many difficulties. Why could they not have recognized that God knew best? Why could they not, in a manly way, have pushed into and through difficulties, without murmur or complaint? Oh dear me! Why can't *we*, with this bright and beautiful world before us, push ahead with more manliness and courage, instead of grumbling and complaining against the great God who is trying to lead us? Do some of you look up and question? Why, to be *sure* he is trying to lead us, just exactly as he tried to lead the Israelites. But part of us think we know more than God does; and another part are contrary and stubborn, and would *not* be led any way if they thought God had any thing to do with it. Poor Moses! They were not permitted to see and talk with God, so they vented their spleen by continual grumblings against Moses, the God-appointed leader and law-giver. I wonder if they had learned by past experience that nothing vexed Moses more than to have them get on that old strain, and declare they would rather be back in Egypt than to put up with the hardships he called upon them to endure. They said, "Wherefore have ye brought us up out of Egypt to die in the wilderness?" This was a most flagrant and glaring untruth. Moses brought them out of Egypt, from a terrible bondage, into the most wonderful freedom, to *live*. Why, their freedom was like unto that of the United States of America. No king like Pharaoh held them at all. In fact, nothing and nobody stood between *them* and *God*. They were to obey *God's* will, and they were accountable to *him* and to no one else. They had not, however, very much of the spirit of Peter when he said, "We ought to obey God rather than men." But they did not see it. They had got into a chronic fashion of grumbling, and so they did not know when they were well off. They said there was not any bread nor water. Both statements were practically untrue. They had bread and water both, more than they deserved. In fact, they admitted it, in the next sentence, "Our soul loatheth this light bread." No doubt God knew it was best to put them on a restricted diet. He had tried giving them meat, even quails, until the supply was almost without limit. But it did not seem to stop their chronic grumbling very much. Finally their dissatisfaction came to such a point that it was next to anarchy. In fact, I do not know but it *was* anarchy outright; and it was not only anarchy against Moses and against the law, but it was anarchy against God. By the way, is not all anarchy against God as well as against the laws of our land? The anarchist *commences* by defying God—usually by rejecting the very idea of an overruling Providence.

The way of the transgressor is hard, and away back in olden times it was hard. Punishment came. The next verse reads:

> And the Lord sent fiery serpents among the people, and they bit the people; and much people of Israel died

The fiery serpents were the reward for their ingratitude and unreasonable complaining. The serpents bit the people, and we are told that much people died. A great many times, when this thing gets a going, this rebellion against God's providences, nothing but severe measures will stamp it out; and even nowadays you see people boldly defiant. They will even challenge God to punishment; but sometimes the punishment comes, even as the fiery serpents did. I have seen men, when they got into jail, defy God and the laws of our land. I have heard them say they would as soon be in jail as anywhere else—that they could stand it as long as the authorities could afford to board and lodge them. But steady confinement, week in and week out, finally begins to tell. The overbearing stubbornness gives way. Sometimes these friends say they do not care if they are shut up away from society—that society is a lot of hypocrites any way. But nature—the laws that are implanted in us—in due time makes them hunger for companionship, and they accordingly welcome me, even if I do talk plain, and point out the cause of their misfortunes. This people, too, became humble and obedient. Let us read the next verse:

> Therefore the people came to Moses and said, We have sinned, for we have spoken against the Lord, and against thee; pray unto the Lord, that he take away the serpents from us. And Moses prayed for the people.

We do not know just how penitent they were; but their words sound frank and honest. They admitted their sin, acknowledging that they had sinned in speaking against the Lord and against Moses. Then they begged, in a proper spirit, that Moses would beseech the Lord that the serpents might be taken away. Moses was always ready to forgive and to forget. He prays accordingly. But the offense was an old one. They had again and again fallen into the same sinful fashion; and the probability is, that their penitent spirit will last only a little while. The Lord deemed it proper that they should be tested. Instead of taking the fiery serpents away at once, he directed Moses to give them an object-lesson that would teach them, or test both their faith and fidelity at one and the same time. Moses was directed to make a serpent of brass, and hold it up on high. Let us read the eighth verse:

> And the Lord said unto Moses, Make thee a fiery serpent, and set it upon a pole; and it shall come to pass, that every one that is bitten, when he looketh upon it, shall live.

The serpents were allowed to harass the people just as they did before. But a remedy was provided that acted so quickly there was no need of any suffering of any account. The serpent was evidently held up so high that every person in the camp could get a glimpse of it in time, if he took even a *little* pains; and in some miraculous way it was so ordained that one had only to *look* and live. In fact, it turned out exactly as Moses announced. The Bible does not tell us in plain words that there were those too contrary or with too little faith to even *look* and live; but we may readily conjecture that such there were; and this plan of testing had the effect of sifting out or sorting out the rebellious element. They were soon dead, and out of the way of tempting others. And in the present age the nations of the earth have again and again come to the conclusion that there is no other way to protect human life properly, and human comfort, but absolutely to *put to death* those who will probably never be any better. Public good and public safety seem to demand it; and we find it necessary, for the safety of our people, that they may not be murdered, to decide that it is dangerous to let these extreme criminals go about and set an example before others. Example is contagious; *anarchy* is contagious. If a mad dog appears on our streets, the people at large with one consent decide it must be put to death. It may have been a good dog heretofore. And suppose there *is* a possibility it might be cured. We can not afford to take the risk, nor trifle with any thing so terrible and dangerous.

During the latter part of this nineteenth century a new danger is beginning to threaten society. There are men so terribly ugly and vindictive that, for the sake of spiting those they hate, they will throw away their own lives in order that they may destroy somebody who seems to be universally respected and beloved by the great majority at large. The assassination of our presidents comes right in this line. Very likely the only safeguard against the more frequent recurrence of such things is, that the offenders be promptly put to death. Even if they are crazy, or partly crazy, I do not know but the public good *demands* their removal that their fate may be a lesson and warning to others who are similarly crazy.

There are very few references in the Bible to this little incident. We are told, however, that this brazen serpent, after it had served its office, was preserved by the children of Israel for several centuries, till the time of Hezekiah. Strange enough, however, even a thing so sacred became in time a snare to them. These silly Israelites got into a fashion of worshiping the serpent instead of the God who directed that it should be made. The faithful and incorruptible king, Hezekiah, however, destroyed it totally.

Moody used to give us a most stirring exhortation in regard to this story I have told you. When he was in Cleveland, doing a great work, some of the unbelievers wanted to argue with him. They asked him to give up his meetings, and discuss theology. He told them he had no time for any "discussion" that did not bring souls from darkness to light. Said he, "Friends, my time is all occupied, as you will see if you simply look on, in bringing hope, happiness, and peace to those who are suffering and dying as a consequence of sin. You ask me to stop and discuss." He then told the story of the brazen serpent. "Now," said he, "suppose somebody in the olden time refused to look at the fiery serpent because he could not understand how a look could save one's life. His friends and neighbors might say, 'Why, look and see. See those around you who have been cured and are being cured.'" Well, I have just this same argument with those who have said to me, "Mr. Root I have looked, and am looking, but I do not see that the Christian religion is doing any good in the world." I have met only a very few persons, in all my travels, or through my correspondence, who had the hardihood to make such a speech as this. There are some, however, who do it, or who would do it, if anybody would listen to them. What shall we do when we meet such people? I have thought of saying this: "My friend, if you can not see in your own neighborhood, or where you happen to be, that a faith in Christ Jesus helps people to be better, then I can not help you. I do not see that there is *any* help." I can, however, pray that the Holy Spirit may open the eyes of such, and that it may quicken their understanding, and may help them to be honest. But this is all that I know of that one can do when he meets this sort of unbelief.

When it was my good fortune to be permitted to look upon that wonderful cyclorama of the Crucifixion I was much struck by the words of the minister of the gospel, whose office it was to explain the wonderful exhibition. Said he, "Some of you may ask what means this scene —this persecution and putting to death of an innocent man? The plainest and simplest explanation that I can think of is given in the 3d chapter of John, 14th verse." And then he read, "As Moses lifted up the serpent in the wilderness, even so must the Son of man be lifted up; that whosoever believeth in him should not perish, but have everlasting life." You see, away back in the early ages this little incident I have given you was a beautiful symbol of Christ's mission to the world; and Jesus, when he came on earth, and when he began to have glimpses of the final closing climax of his earthly work, recognized the figure. Exactly in the same way that Moses raised aloft the brazen image, so must the Son of man be held aloft where all the world can view, both past, present, and future, that whosoever may look on that figure, and comprehend the sufferings and death, may, by accepting him, have eternal life. And yet there are those who refuse to accept him. Why do they refuse? I do not know. I confess I can not understand it. I know why *some* do not, and Jesus himself tells us—because "men love darkness rather than light, because their deeds are evil."

And, again, "But he that doeth truth cometh to the light." Let me give you just one little figure. Our intrepid and valliant friend Howard H. Russell, who is making such havoc among the saloon-keepers of this State, a few nights ago pushed into a saloon. He has been doing this so much of late that saloon-keepers have been warned, and they are on the lookout for him. Sometimes he is put out of doors before he has a chance to collect any evidence against them. At one place he found between fifteen and twenty boys—boys under 18—in a saloon. This is contrary to law. There may be some, however, who think the law a foolish one. Well, it might have been in the same saloon; perhaps it was in another one, however; I can not tell exactly; but during one of his raids he succeeded in getting only a card from the counter before he was put out. This card, however, was quite a "find." On one side of it was one of the most filthy rhymes that Satan ever conjured up, by the aid of men so lost that they scruple at nothing provided they can make money by it. He carried this card into a crowded audience, held it up where all could see, and said, "My friends, the reading on this card which I hold here in my hand is such an awful outrage on every thing good and pure and holy that I could not read it in any audience; in fact, it is not fit to read to any living being. I picked it up from the counter in one of the saloons in your town. Some of you may say, perhaps, that the proprietor had nothing to do with putting it there, and that he would burn it up as quickly as you or I. Hold on a little. On the opposite side is his name, address, occupation, etc. That side I can read right out loud. and I hope he will profit by it."

And then he read it out loud; and before the meeting was closed a law-and-order committee was appointed to have the man arrested for violating the laws of our State in distributing obscene literature. Howard H. Russell is a Christian—one of the most fearless and devoted followers of Christ I ever met in my life. Ernest said to me a few days ago that Mr. Russell would certainly be put out of the way if he persisted in pushing ahead as he is doing. The liquor-men will put him to death exactly as other wicked men put Christ Jesus out of the way—or, at least, tried to do so. If friend Russell should happen to come into your neighborhood, or if you hear of his work, will you stand by him?

Now for the lesson, or, rather, the application. The men who printed these cards, as well as the men who helped to distribute them, are bitter—terribly bitter—in their hatred of Christianity and the Christian religion. They love darkness and hate the light. It is Christianity that is holding obscene literature, the saloon-traffic, and every thing of that ilk, in abeyance. You know what I say is true Christ Jesus is the essence of purity. He has said, "Blessed are the pure in heart, for they shall see God." Now, my friend, are you helping? The salvation of the world depends upon holding high up the cross of Christ. Are you helping to do it? Are there any who read these words who have been helping to pull him down? Wait a minute. Suppose one of those cards I have mentioned were passed around among a lot of school children. Suppose your boy, ten or fifteen years old, should get a glimpse of it. Suppose he should read the foul words, and they should stamp themselves like fire in his memory, so the memory of that foul thing could never be eradicated. A single glimpse of such an unclean thing will sometimes haunt one through a lifetime. The laws of the United States are getting to be more and more severe, and good people are working hard to burn up every thing of that sort before it can be circulated. What sort of spirit is it that tries to evade the law, and escape the watchful eye of Christian men and women? What evil spirit possesses them? Why are obscene literature and the saloon business always linked hand in hand? Do I need to tell you that they hate the very sight of a Bible or the bare mention of a Sunday-school? Where would the world come to if these men had their own way? Is it not a glorious thing that we *have* a remedy —even Christ Jesus, the Lamb of God that taketh away the sin of the world?

CONVENTION NOTICES.

The next annual meeting of the Wisconsin State Bee-keepers' Association will take place Feb. 7, 8, 1894. J. W. VANCE,
Madison, Wis. Cor. Sec.

There will be a meeting of the Southeastern Kansas Bee-keepers' Association, March 16, at the apiaries of Thomas Willett, 5 miles northeast of Bronson, Bourbon Co., Kan. All are invited. J. C. BALCH, Sec.

Those who become members of the Illinois State Bee-keepers' Association by sending their fee of one dollar to the secretary will receive a cloth-bound copy of the next report, soon to be published, and will also be a participant in the statistical report of bees which will be gathered and published in the months of May, July, September, and October.
Bradfordton, Ill. J. A. STONE, Sec'y.

SPECIAL NOTICES
FROM
BUSINESS MANAGER

SHORT ODD-LENGTH ROLLS OF WIRE NETTING, AT FULL-ROLL PRICES OR LESS.

We have the following lot of wire netting of various sizes and widths in short or odd-length rolls. Very often a person wants a piece and can not buy it cut from a full roll without paying double price. You may be able to find in this list just what you need, or very near it. Even if you want more than a full roll you will find the prices at which we offer these pieces to be in most cases less than full-roll price.

If any can use light 3-inch-mesh netting, 5 and 6 feet wide, we have a few rolls that we will close out as follows:

2 rolls 3 in., No. 20, 60 in. wide, 150 ft. long, at $2 50
2 " " " " 72 " 150 " " 3 00
8 " " " 19, 72 " 150 " " 3 25

Of 2-inch mesh No. 19 wire, we have the following remnants and short rolls at $\frac{3}{5}$ c per square foot. The figures at the left give the width in inches, and the other figures give the length of each piece in feet. Multiply this by the width in feet, then take three-fifths of the result to find the price of each piece.

30 | 45, 60, 64, 70, 90, 91, 95, 107, 123, 140, 144, 146.
36 | 9, 18, 19, 26, 38, 40, 40, 40, 49, 50, 50, 50. 53, 54, 55, 58, 60, 64, 73, 73, 74, 82, 83, 84, 86, 87, 90, 90, 92, 94, 96, 96, 96, 99, 115, 100 100, 100, 100, 100, 102, 102, 102, 105 105, 109, 110, 111, 114, 60, 116, 118, 120, 120, 122, 124, 124, 125, 125, 128, 129, 129, 138, 141, 142, 142, 143, 144, 147.
42 | 85, 131.
48 | 32, 35, 38, 40, 55, 61, 67, 68, 75, 75, 82, 83, 83, 84, 86, 87, 90, 94, 96, 119, 122, 123, 123, 124, 138, 138, 140, 143, 144, 144, 144, 144, 145, 145, 145, 146.
54 | 72, 88, 88, 143.
60 | 69 75, 78, 96, 101, 101, 103, 105, 107, 110, 120, 123, 124, 138, 140, 144.
72 | 16, 20, 42, 47, 48, 73, 82, 85, 85, 88, 100, 100, 112, 119, 120, 123, 124, 142, 147, 148.

Of 2-inch No. 20 we have the following pieces at one-half of a cent per square foot. Arrive at the price in precisely the same way as above, taking one-half of the number of feet instead of three-fifths, to get the price in cents.

30 | 140, 140, 140.
36 | 35, 36, 38, 39, 56, 57, 79, 81, 88, 100, 100, 100, 110, 119, 120, 122, 126, 128, 128, 134, 136, 138, 140, 144, 145.
54 | 145.
60 | 20, 139.
72 | 38, 44, 45, 70, 75, 76, 79, 100, 100, 128, 137, 139.

In the following list we give first the size of mesh; next, the number of wire; next, the width in inches; then the length in feet, and, finally, the price of the whole piece, so you will have no figuring to do.

1¼ in., No. 19, 34 in x 126 ft., at $4.25.
1¼ in., No. 19 36 in. x 48 ft., at 1.60.
1¼ in., No 19 48 in. x 78 ft., at 3.50.
1¼ in., No. 18, 48 in. x 80 ft., at 4.20.
1½ in., No. 16, 30 in. x 70 ft., at 3.15.
1½ in., No. 16, 42 in. x 34 ft., at 2.10.
1½ in., No. 16, 48 in. x 92 ft., at 6.50.
2 in., No. 15, 18 in. x 73 ft., at 1.65; x 87 ft., at $2 00.
2 in., No. 15, 18 in. x 30 ft., at .70; x 55 ft., at $1.35.
2 in., No. 15, 12 in. x 100 ft., at 1.50.
2 in., No. 15, 48 in. x 8 ft., at .50.
2 in. No. 15, 54 in. x 122 ft., at 8.00.
2 in., No. 15, 60 in. x 20 ft., at 7.50.
2 in., No. 15, 60 in. x 21 ft., at 1.60.
2 in., No. 15, 72 in. x 33 ft., at 3.00.
2 in., No. 15, 72 in. x 36 ft., at 6.20.
2 in., No. 16 12 in. x 78 ft., at .85.
2 in., No. 16, 18 in. x 13 ft., at .20.
2 in., No. 16, 30 in. x 24 ft., at .65.
2 in., No. 16, 72 in. x 58 ft., at 3.80.
3 in., No. 16 24 in. x 19 ft., at .35.
3 in., No. 15, 36 in. x 14 ft., at .45.
3 in., No. 14, 24 in. x 150 ft., at 4.40.
3 in., No. 14, 48 in. x 15 ft., at .90.
3 in., No. 14, 72 in. x 70 ft., at 6.20.
3 in., No. 14, 72 in. x 100 ft., at 8.80.

We have, besides, a lot of pieces of web fencing, 4 and 8 inch mesh, that we will close out below cost. Those interested please write for particulars.

In lots of 5 pieces, any one or assorted kinds, deduct 5%; 10 pieces, 10%; 25 pieces or more, 15%. On the 72-inch netting you may also deduct 10% on single-piece orders; or, in addition to above, on quantity orders. First come, first served. Generally these pieces go off very rapidly, and it may be well to name a second or third choice in case your first may be gone.

SPECIAL SECTIONS AT SPECIAL PRICES.

On going over our stock we find the following list of No. 1 white sections, such as we have sold for best until this season, and which are as good as or better than the best made by all but possibly two or three leading manufacturers. We offer these, while they last, at $2.50 per 1000; 2000 for $4.50; 3000 for $6.50, or 5000 for $10.00. At the rate they have been going they are not likely to last long. When these are gone we shall have none but our extra polished sections to offer, and the No. 2 grade selected from them in manufacturing. The sizes on hand here are as follows:

23,000 4¼x4¼x1$\frac{15}{16}$, closed top.
67,000 " " 1$\frac{13}{16}$, open top.
4,000 " " 1$\frac{13}{16}$, closed top.
40,000 " " 1¾, open top.
6,000 " " " closed top.
35,000 " " 7 to foot, open top.
16,000 " " 7 to foot, closed top.
7,000 " " 7 to foot, open four sides.
8,000 " " 1½, open top.
12,000 " " " open four sides.

Besides the above we have at Bankers, Hillsdale Co., Mich., the following, which are offered at the same prices:

33,000 4¼x4¼x1$\frac{15}{16}$, open top.
25,000 " " 1⅞, open top.
40,000 " " 1¾ and 7 to foot, open top.

All No. 1 white, made two years ago, and choice sections. Send orders for these to us here at Medina.

In our stock at St. Paul, Minn., with H. G. Acklin, 1024 Miss. St., we have about the following quantities of No. 1 white sections, which we offer at the same prices. Send orders to above address for these or any other items needed in the line of bee-keepers' supplies. There is a full stock ready for prompt shipment, but none of our new sections are in stock there yet.

18,000 4¼x4¼x7 to foot, open top.
30,000 " " 1⅞, open top.
8,000 " " 1$\frac{15}{16}$, open top.

Also of No. 1 cream, at same price as on stock here named below, the following:

9,000 4¼x4¼x1⅞, open top.
10,000 " " 1$\frac{15}{16}$, open top.

Of No. 1 cream and seconds, from our new extra polished sections, which are about equal in value, we have in stock here the following, which we offer at $2.00 per 1000; 3000 for $5.70; 5000 for $9.00.

9,000 4¼x4¼x2 open top.
8,000 " " 2 open four sides.
35,000 " " 1$\frac{15}{16}$, open top.
25,000 " " 1⅞, open top.
12,000 " " 7 to foot, open top.

Of other sizes of No. 1 white sections we have the following at the price annexed:

1500 5¼x5¼x1⅞, closed top, at $3 00 per 1000.
2500 " " 1$\frac{15}{16}$, open " " 3 00 "
2500 5 x6 x1⅞, " " " 3 00 "
700 5½x5½x1⅞, " " " 2 00 for lot.
9000 6¼x5¼x2 " " " 3 00 per 1000.
1500 " " 1⅞, " " " 3 00 "
4500 " " 1¾, " " " 3 00 "
6500 5¼x6¼x1$\frac{15}{16}$, " " " 3 00 "
2000 " " " closed top, " 3 00 "

The above are all choice fresh sections, and a bargain at the price. We have, besides, a lot of odds and ends too numerous to list here, of which we shall be pleased to mail a list of sizes, quantities, and prices at which we will close out, to any one who is interested, and sends us a request for it. You may find in it something you can use at trifling cost.

IMPROVEMENT IN MAKING SASHES FOR HOT-BEDS AND COLD FRAMES.

We have just commenced making something that I am sure will be heartily welcomed by all who use sashes for plant-beds. One serious difficulty in shipping is the high rate necessarily charged for sash made up; therefore I have devised a sash that can be shipped in the flat, and that can be put together in a very few minutes by any one of ordinary ability. For my own use I would put them together with screws; but as screws usually cost about 5 cents for each sash, our friends who wish to work with very close economy can use wire nails in place. If the wire nails are clinched on a block of iron, I do not know but they will be about as secure as the screws; and I think they can be nailed a little more rapidly. Another thing, the glass slides in grooves; and, if you choose, you can use them without paint or putty. In fact, the glass is a good deal more secure than where paints and putty are used. They were originally designed for slatted sash, or sash fitted with strips of glass 2 inches wide. I have several times spoken of these ventilated sashes. They are specially adapted to onion-plants. In fact, we have now beautiful beds of onions that have had no covering except these ventilated sashes, and the plants are a great deal stronger and thriftier than where they were protected by ordinary sashes. A large class of plants that require a great amount of ventilation winter nicely under these, and we can put them on in the fall and let them remain till spring. They not only ventilate the plants, but allow them to get the benefit of the rain when there is any. But, to return to the new kind of sash. If you use them without paint or putty, of course the rain will get through, as it does with the ventilated sash; and if you are in a hurry to use them you can put the sash together very rapidly, and the 8x10 glass will slide into grooves almost of itself. Then put a nail or screw at the bottom, and the job is done. I do not now know how many years sash would last used in this way without paint or putty; but any time when you have decided to have them painted or puttied it can be done. The liquid putty run into these grooves all around (and between the butted ends) the glass makes perhaps the most substantial sash ever handled. When it comes, however, to replacing broken glass, it is not quite as easy as where you have only to pull out the tins and scrape the putty out. Well, now, let us get down to business. We can send you one of these new sashes in flat, as sample, for 65 cents; 5 in the flat, 60 cents each; 10 in the flat, 55 cents each. If you want screws to put them together with, add 5 cents for each sash. The holes are all bored so you know just where the screws are to go. If desired we can put on a priming coat before the stuff is put together; and this is a very good way, because the *joints* will then all be painted, as well as the outside. Glass, 8x10, just right for the above, $2.50 per box of 90 lights. As it requires 24 sheets of glass for a sash, you can easily figure out the expense. Of course, we can furnish sash put up, painted and glazed; but it is so much safer and cheaper to ship all in the flat, I earnestly recommend this way. We can, however, where parties desire, ship them all put up, painted, glazed, and puttied, in lots of 5, for $1.75 each. I would not advise undertaking to ship a less number than 5 finished sashes. Where they are shipped put up, of course it is an extra expense to box them so as to prevent damage in transit. When they are shipped in the flat, the expense of putting up is very much less, and the railroad companies give us a fourth-class freight; whereas, all complete they would have to go at first-class, and sometimes double first-class.

BUSH LIMA BEANS.

You will see, by the prices in our new catalogue, that these have finally got down very near the price of the pole limas—viz., 50 cents per quart for Burpee's bush limas, and 75 cents for the Kumerle. You may remember the latter is one for which I paid $75 00 for a small handful two or three years ago. The Kumerle is, in my opinion, the richest and most luscious lima bean grown. I was right in my convictions when I paid this large price before I had learned how to manage it. It must not be put on very rich ground, and it must be on sandy or gravelly soil, or else the ground must be ridged up, something as you do with sweet potatoes. I would, however, have the ridges broader than we have them for sweet potatoes. Plant on top of the ridges, and do not have the ground too rich, and you will have no trouble in getting ripe beans; otherwise you will have a great quantity of green ones, and a large amount of foliage with beans getting moldy if the weather should be wet. With the above precautions I think you may raise a good crop of Kumerles in any ordinary corn-ground. I think I would put them in drills, having the plants stand about a foot apart. They will then branch out enough so as to cover both sides of the ridges. You need not be so particular about Burpee's bush lima, although I think the same treatment would be an advantage. Burpee's is considerably the largest bean, therefore the price is lower. At present prices I am very sure it would be a good investment to plant an acre. Sell all you can green, and take some pains to have your crop dry properly, and you will be sure to sell the dry beans easily for $8 00 or $10.00 a bushel. The Kumerle is a magnificent bean to be cooked dry. You may remember that, when I first made my decision in regard to its flavor, I had a little dish of them for dinner; and afterward, when no more could be had, I paid about $25.00 for about the same number I ate at that one meal. Rather expensive eating. But I thought then, and I think now, they are the most delicious food that grows in the garden. Dreer's pole lima is virtually the same thing. If you have never had a taste of them, try them and see if I am not right. We send a small package of either for 5 cents; but I think that at present prices, you can afford to plant half a pint any way. We started in the season with a two-bushel bag of each. I hardly need say that the Henderson bush lima is not only small in size, but inferior in quality to either of the above. It has, however, the merit of being earlier than any thing else in the line of lima beans. See our new catalogue for further particulars.

ONION SEED FOR 1894.

If you have been looking over your seed-catalogues you will notice there is quite a variation in prices. The fact is, an effort was made in the fall to keep onion seed up; but it has transpired that there was a bigger stock in the country than they knew of; consequently there was quite a tumble in some varieties. Wm. Henry Maule caps the climax by offering to deliver 10 lbs. at any postoffice in the United States, of *certain varieties*, for $10.00; and Buckbee, of Rockford, Ill., follows close in his wake, and offers to do the same thing. Well, we will also deliver 10 lbs., postpaid, to any postoffice in the United States for $10.00. The kinds are, Extra Early Red, Red Wethersfield, and Yellow Globe Danvers. If ordered in less quantities than a pound, the price will be $1.20 per lb., postpaid. The two first are varieties we have not sold for some years, for the reason that a red onion does not bring as good a price, generally, as a white or yellow one. Some claim, however, that red onions are hardier, like the red celery. This may be true. In fact, I rather think there is something in it. Well, how about the Globe Danvers, which we list at $1.75 per lb., in our regular seed-catalogue? Well, I can not tell you. The latter cost us a good deal *more* than a dollar a pound. As to whether the cheap seed at $1.00 per lb. postpaid is as good as the other, I can not tell. The three varieties I have mentioned above come from one of the largest if not *the* largest wholesale seedsmen in the United States. And, by the way, I have made some experiments with high-priced seed and low-priced seed that trouble me. The cheap seed *sometimes* does just as well as the high-priced. In fact, I have once or twice paid great prices and got the poorest seed. In these tests, mind you, however, the cheap seed always came from a large dealer and *reliable* seedsman. I wish our experiment stations would tell us whether we are likely to get better results by buying from seedsmen whose prices are away up. The above exceedingly low offer on onion seed is for immediate orders only. We can not tell how long the stock will hold out; but we will continue to fill orders just as long as we possibly can, at the above prices. If you have the seed sent by freight or express with other goods, you may deduct 8 cts. per lb. from the above prices.

FREEMAN POTATOES.

If you look over the seed catalogues that are coming now into almost every home, you will find that nobody offers the Freeman potatoes at any thing like the prices we do. Every seedsman who has had them for sale has sold out, and has had to return money each season since the potato was started. Maule tells us, in his catalogue, of a man who bought 4 lbs. of Freemans in 1891, for which he paid $8.00. He planted every potato, and did the best he could with them. He did the same thing in 1892 and '93, and last fall he sold the resulting crop for over *$6000*. If we knew just what new potato or new any thing else was going to *continue* to hold public favor, we might make money "right smart." Please notice, no more Freemans are offered for sale at the prices offered last fall. For the present rates, see prices in our new seed-catalogue; and our supply will probably not hold out, even at these figures.

CARLOAD ORDERS.

Since our last report we have received an order for a carload of Dovetailed hives to go to Charleston, Mo., for Alex. French. We have specifications for three carloads for our Eastern depot at Syracuse, N. Y., where F. A. Salisbury is in charge to take care of the wants of our friends in the East. We have also an order for a carload for Los Angeles, to G. G. Wickson & Co. We expect, about six weeks hence, to start two more cars to this firm, one to San Francisco and the other to Los Angeles. Any of our California friends in want of any thing special will do well to send in their orders to this firm without delay, so that they may not be disappointed in getting their goods on time.

FREE SAMPLE PACKAGE OF COMB FDN. AND SECTIONS.

We have gotten up a very neat sample package which illustrates our new extra polished sections, and encloses samples of our comb fdn. We shall be pleased to mail this free to all who request it.

DEALERS IN BEE-KEEPERS' SUPPLIES.

We have printed a special edition of 10,000 catalogs with 32 white pages and a cover, for the use of small dealers who handle our goods, and don't care to go to the expense of a special catalog of their own. Changes are made on the cover. We will furnish them at cost, which is merely nominal. Samples with terms will be sent shortly to dealers on our list. Shall be pleased to hear from others interested.

CALIFORNIA SAGE HONEY.

We learned, after the last issue was printed, that Mercer & Son had made other disposition of the sage honey we expected to get, so that we shall not have the carload as planned. We have arranged to fill all orders from stock already in Chicago, of equally good honey. We shall have samples here to mail to any who are interested. We can supply choice extracted honey in kegs of 170 or 210 lbs. at 7 cts. per lb. In cans of 60 lbs., 2 in a case, at 8½ cts.; 2 cases or more at 8 cts. Comb honey, 1-lb. sections, choice white, 15 cts. per lb.; No. 2 at 13 cts. in lots of 100 lbs. or more.

KIND WORDS FROM OUR CUSTOMERS.

You may send us 40 copies of Mr. Terry's A B C of Potato Culture. Mr. T.'s remarks on how to prevent scab in potatoes is worth four times the price of the work. HOOVER & PROUT.

Avery, O., Jan. 15.

THE NEW POTATO BOOK.

At the present writing we are having a very encouraging sale of Terry's new book; and among the other kind words received, here is one from our Ohio Experiment Station that may be of interest to many:

Mr. Root:—I have just received a copy of the A B C of Potato Culture, revised edition, by Terry, and have been much pleased while looking it over. It is so instructive and entertaining that I could hardly resist taking the time at once to read it through; but it must be laid aside until I have more leisure. I wish, Mr. Root, that some other publishers would follow your example and give us revised editions of agricultural and horticultural books as often as they are needed. The majority of books on these subjects are so old that they have but little value, except in a historical way. It does not do a practical man much good, however, to study up agricultural history. He wants to know the best methods of *to-day*, and this little book gives the latest and best on potato culture, besides a good many hints that may be utilized in growing other crops.

Wooster, Ohio, Dec. 28. W. J. GREEN.

GOLDEN QUEENS From Texas. My bees can not be surpassed for business, beauty, and gentleness. Safe arrival and satifaction guaranteed. Untested queens—March, April, and May—$1 each. *150* fine Tested Queens for early orders, $1.50 each. Order early. Send for price list.

J. D. GIVENS, Box 3, Lisbon, Tex.

Sections

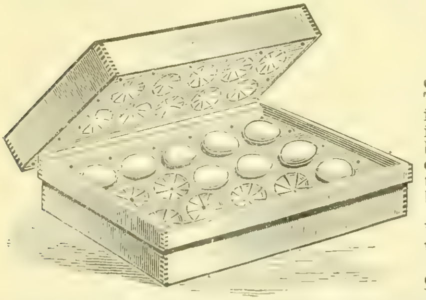
Sandpapered and Polished on both sides while you wait; but don't wait too long, or you will look like the man above. Dealers are already laying in a stock, and if you want any, order before the rush. We invite comparison of these goods with other makes, and will gladly send you samples for two 2-cent stamps to pay postage. Our 52-page catalogue for '94, telling all about this and other goods, free for the asking. **A. I. ROOT, Medina, O.**

FOOT-POWER MACHINERY.
COMPLETE OUTFITS.

Wood or metal workers without steam power can successfully compete with the large shops by using our NEW LABOR SAVING MACHINERY, latest and most approved for practical shop use; also for Industrial Schools, Home Training, etc. CATALOGUE FREE.

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N. Y.

☞ In responding to this advertisement mention GLEANINGS.



Costellow's Egg=Box.

This is an invention of great value to poultrymen in general, and to those who ship eggs for hatching in particular. The box is complete in itself, nothing in the way of packing being required. It is only necessary to place the eggs in the box, and fasten the cover down; they are securely held in place by light springs, which allow no play in any direction, but which hold them suspended in the center of the box, where they are secure from all jar, thumping, or breakage.

At a recent poultry show in Cleveland, O., one of the boxes was filled with eggs and tossed around the room and thrown to the floor; and, on opening, not an egg was broken. The springs are so constructed that they will hold with equal security and ease any size of hen's egg. The single box will successfully carry any number of eggs from one to fifteen, and the double box any number from one to thirty. The cover is secured by metal fastenings on each end, not shown in the engraving. It is well adapted to keeping eggs for higher prices, as, by turning the box over every few days, eggs in it will keep sound and good for six months or more.

PRICES.

	Sample.	Per doz.	Per 100.
15-egg box	$ 25	$1 80	$12 50
30-egg box	35	3 00	20 00

It is lighter than any other package that you can use with equal safety, as well as being cheaper. The 15 box weighs only 1¼ lbs., and the 30 box 2¼ lbs.

A. I. ROOT, MEDINA, OHIO.

Root's Goods at Root's Prices.

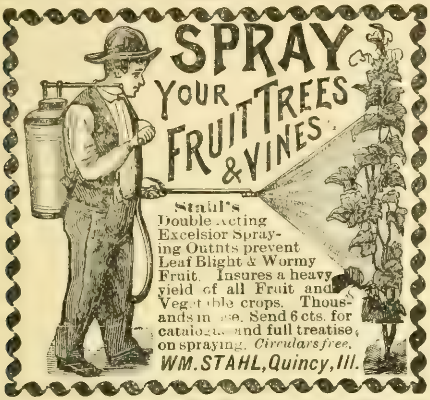
We have the best shipping-facilities in the Northwest. We can save time and freight by shipping direct on some 40 or more railroads, without change of cars, which saves handling, and goods are much less liable to be broken or smashed.

Root's 1893 No. 1 white sections, $4\frac{1}{4}$x$4\frac{1}{4}$x7 to foot, $1\frac{7}{8}$, and $1\frac{15}{16}$, at \$2.50 per 1000. No. 1 cream, $4\frac{1}{4}$x$4\frac{1}{4}$x$1\frac{7}{8}$ and $1\frac{15}{16}$, \$2.00 per 1000.

Write for price list and what you want.

H. G. Acklin, 1024 Mississippi St.,
St. Paul, *Minn.*

Northwestern Agent for A. I. Root's Bee-keepers' Supplies.



Stahl's Double Acting Excelsior Spraying Outfits prevent Leaf Blight & Wormy Fruit. Insures a heavy yield of all Fruit and Vegetable crops. Thousands in use. Send 6 cts. for catalogue and full treatise on spraying. *Circulars free.*

WM. STAHL, Quincy, Ill.

☞In responding to this advertisement mention GLEANINGS.

CHOICE 50c. TRIAL SETS.

Set B	16 pkts. Vegetable Seeds, -	50c
" **E**	-20 pkts. Flower Seeds, - -	50c
" **F**	-10 Lovely Carnation Pinks,	50c
" **G**	—10 Prize Chrysanthemums,	50c
" **H**	—4 Superb French Cannas,	50c
" **J**	—10 Elegant Roses, - - - -	50c
" **M**	—24 Fine Gladioli Bulbs, - -	50c
" **P**	—6 Hardy Ornamental Shrubs,	50c
" **R**	-6 Choice Grape Vines, - -	50c
	½ each of any two sets, - -	50c

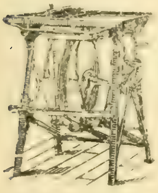
No two plants alike in these sets.

Any 3 Sets, \$1,25; 5 for \$2.

By mail, postpaid. Safe arrival and satisfaction guaranteed. Order by the letters from this advt. NOW as these are introductory sets not in catalogue, **an elegant annual** of 168 pages, free. **Everything** of the **best** for **Orchard, Vineyard, Lawn** and **Garden.** 40th year. 1,000 acres, 28 greenhouses.

STORRS & HARRISON CO.,
PAINESVILLE, OHIO, Box 74.

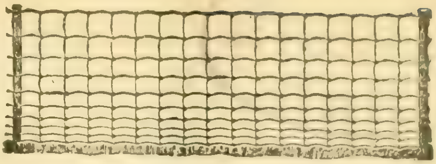
☞In responding to this advertisement mention GLEANINGS.



Read what J. I. PARENT, of CHARLTON, N. Y., says — "We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.

4eoitf Please mention this paper.



The Highest Award in the World

Is the unqualified approval of every customer. Our fence has won at every Fair or Exposition where entered; but what does a practical farmer care for that? The fighting qualities of a soldier are proven *on the field of battle*, not *on dress parade.*

PAGE WOVEN-WIRE FENCE CO., Adrian, Mich.

☞In responding to this advertisement mention GLEANINGS.

SIX LEADING VARIETIES OF POULTRY. **EGGS FOR HATCHING.**

Orders booked now. Send for descriptive card.

J. S. Mason, Medina, Ohio.

BEES QUEENS

Smokers, Sections, Comb Foundation, And all Apiairan Supplies cheap. Send for FREE Catalogue. E. T. FLANAGAN, Belleville, Ill.

BEE SUPPLIES RETAIL AND WHOLESALE

Every thing used in the *Apiary*. Greatest variety and *largest* stock in the West. New catalog, 70 illustrated pages, free.

Discounts to Dealers.

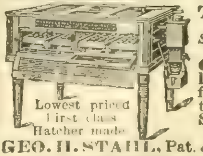
E. KRETCHMER, Red Oak, Ia.

☞In responding to this advertisement mention GLEANINGS.

World's Fair Medal

Awarded my ***Foundation.*** Send for ***free samples.*** Dealers, write for wholesale prices. Root's new ***Polished Sections*** and other goods at his prices. ***Free*** Illustrated Price List of every thing needed in the apiary. **M. H. Hunt.**
Bell Branch, Mich.

HATCH CHICKENS BY STEAM WITH THE IMPROVED EXCELSIOR INCUBATOR.



Lowest priced First class Hatcher made

Thousands in Successful Operation. *SIMPLE, PERFECT, and SELF-REGULATING.* **Guaranteed** to hatch **a larger percentage** of fertile eggs, at **less cost,** than any other Incubator. Send 6c. for Illus. Catalog. Circulars Free.

GEO. H. STAHL, Pat. & Sole Mfr., Quincy, Ill.

Please mention GLEANINGS. 21 8db

Cash for Beeswax!

Will pay 23c per lb. cash, or 26c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 28c per lb., or 30c for *best selected wax.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio.

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Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.-To exchange 25 Simplicity and 25 L. hives complete, valued at 50 cts. each, for extracted honey. A. C. WALDRON, Buffalo, Minn.

WANTED.—To exchange a $30 gold watch for BEES, comb foundation, wax, white extracted honey, or section boxes. J. B. MASON, Mechanic Falls, Me.

WANTED.—To exchange Given foundation or books, for extracted honey or strawberry or raspberry plants. H. W. FUNK, Normal, Ill.

WANTED.—To exchange supplies for L. frames of comb. I. J. STRINGHAM, 105 Park Place, N. Y.

WANTED.—To exchange a good guitar and cloth case, all in good shape, for 250 lbs. white-clover or basswood honey (extracted)
F. R. DAVENPORT, Box 383, Kalamazoo, Mich.

WANTED.—To exchange peach trees and Abundance plum-trees, for a horse. Address
CEDAR GROVE FARM, North Madison, Ind.
See ad. in another column.

WANTED.—To exchange Italian bees in 8-frame L. hives, mostly Hoffman frames, for Wyandottes, Brown Leghorns, Buff Cochins, M. B. or W. H. turkeys, Toulouse geese, Pekin or Rouen ducks, or offers. Address Z. WELLS, Fort Smith, Ark.

WANTED.—To exchange house and lot of 2½ acres, in Astor Park, for bees, to be delivered at Deland, Fla.; also 7½ acres garden, for cash and bees.
JOHN CRAYCRAFT, Astor Park, Lake Co., Fla.

WANTED.—To exchange 12-inch comb-fdn. mill, in good order, for offers.
F. W. STEVENS, Moore's Hill, Ind.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange Matthews' garden seed-drill and Wilson's $5.00 bone-mill, for comb honey and black and tan terrier dog.
EATON T. SAMS, Tiffin, Ohio.

WANTED.—Young lady to assist with house and apiary work. Address ELIAS FOX,
Hillsboro, Wis.

WANTED.—To exchange Columbia tricycle, in perfect working-order, for hives, foundation-mill, or supplies. L. JAQUES, Chatham Ctr., N. Y.

WANTED.—To exchange chaff hives, 1-lb. sections, foundation, etc., for wax or offers.
F. N. JOHNSON, Box 137, Knoxville, Ill.

WANTED.—To exchange two Gilpin sulky plows for a '93 bicycle or offers
J. M. OVENSHIRE, Dundee, N. Y.

WANTED.—Situation in apiary for the coming season, in any part of the United States. Address S. W. WHITE, 401 West Main St., Sedalia, Mo.

WANTED.—To exchange Barnes saw and extractor; want honey, wax, or foundation.
THE MODEL STAMP WORKS, Shenandoah, Ia.

WANTED.—A few dozen pairs of live quail for breeding the coming season. If you don't know how to trap them, write for directions to
J. S. CASE, Colchester, Conn.

WANTED.—To exchange 2 Wilson's $5.00 hand bone-mills, new, for foundation or bee supplies.
J. S. CASE, Colchester, Conn.

WANTED.—To exchange first-class one-piece white-poplar or basswood sections for a cutter-head for cutting the entrances to one-piece sections, with or without table. Must be a No. 1 machine.
O. H. TOWNSEND, Alamo, Mich.

WANTED.—To exchange large young L. Brahmas, fine as silk, for Indian games or extracted honey. No culls wanted. C. T. REED, Greensburg, Pa.

WANTED.—To exchange blackberry-sets, red and black raspberry-plants, $8 per 1000, for beeswax.
A. P. LAWRENCE, Hickory Corners, Barry Co., Mich.

WANTED.—To buy bees; Texas or Colorado preferred. E. SANDFORD, Nokomis, Ill.

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds.
W. Atlee Burpee & Co., Philadelphia, Pa.

Apiary for Sale

In Hardin Co., Iowa. Plenty of basswood and white clover. Every thing needed in the business must be sold. If you want a bargain, write quick.
J. E. HAND, Selma, Cal.

Golden Wyandottes.

No better birds in America. Cockerel, $5.00. Trio, $7.00. Eggs, $2.00 per setting.
E. D. Keeney, Arcade, N. Y.

Seeds Free! ALSO Freeman Potatoes.

YOU CAN HAVE SUCCESS in Bee Culture a Whole Year; 10 strong eyes of Freeman Potatoes (pure), and 10 packets of flower and vegetable seeds, for **40 CENTS**, silver. This offer is made to boom our circulation.
BURTON L. SAGE, Highwood, Conn.
☞In responding to this advertisement mention GLEANINGS

Texas Cactus. Small one by mail, postpaid, 25 cts. Large one by express, 25 cts. Grows in any climate. Fine ornament. Stamps taken.
Beeville, Bee Co., Tex. **Miss Leah Atchley.**

500 Barrels Sweet-Potato Seed.

Yellow Jersey (best variety), extra select, bbl., $3.00.
" " " second size, " $2.50.
Extra Early Carolina, similar to above, " $3.00.
Southern Queen, Red Bermuda (Yam), early, good for heavy soils, $1.50 per bushel. Order now, and secure good seed at reasonable prices. Discount on 5 and 10 barrel-lots Address
L. H. Mahan, Box 143, Terre Haute, Ind.
☞In responding to this advertisement mention GLEANINGS

For Sale Cheap for Cash.

ASPINWALL PLANTER, COMPLETE.

Address GEO. A. HURD, S. Acton, Me.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—The ruling price for fancy white comb honey seems to be 13c. Other grades of comb sell for 10@12c. Extracted is selling at 6c. Hard times cause restricted demand.

S. T. FISH & CO.,
Feb. 7. 189 South Water St., Chicago, Ill.

BUFFALO.—*Honey.*—The honey market is very quiet; stock on hand liberal. Fancy is moving slowly at 12@13; choice, 10@11. Dark is in light supply. Extracted, 5@6. Beeswax, 25@30.

BATTERSON & CO.,
Feb. 7. Buffalo, N. Y.

ST. LOUIS.—*Honey.*—The market being heavily stocked is very toppy, holders seeking buyers, which are scarce. We quote: Comb, 10@14; extracted, in barrels, 4@4½; in cans, 5@5½. Prime beeswax, 24½.

D. G. TUTT GROCER CO.,
Feb. 8. St. Louis, Mo.

CHICAGO.—*Honey.*—There is no change in values since our last quotations, but the volume of business is very small.

R. A. BURNETT & CO.,
Feb. 7. 161 So. Water St., Chicago, Ill.

ALBANY.—*Honey.*—Since the Lenten season set in the demand for both comb and extracted honey has increased very much, but there is no improvement in prices. We quote clover at 10@13; buckwheat, 9@10; extracted, 5@7.

CHAS. MCCULLOCH & CO.,
Feb. 10. 393, 395, 397 Broadway, Albany, N. Y.

KANSAS CITY.—*Honey.*—Demand for honey only fair; good supply. One-lb. amber, 11; white, 13; dark, 10. Extracted, white, 7; amber, 6; dark, 5. Beeswax, 22@25.

HAMBLIN & BEARSS,
Feb. 8. Kansas City, Mo.

CINCINNATI.—*Honey.*—Trade is dull in all its branches, honey included. We quote extracted honey at 4@8c on arrival. Comb, 12@16 for best white in the jobbing way. Supply is good. There is a fair demand for beeswax at 20@23 on arrival for good to choice yellow.

CHAS. F. MUTH & SON,
Feb. 8. Cincinnati, Ohio.

BOSTON.—*Honey.*—Demand for honey is very good. Selling fancy 1-lb. comb at 13@15; extracted selling slowly at 6@7. No beeswax on hand.

Feb. 8. BLAKE & RIPLEY,
Boston, Mass.

KANSAS CITY.—*Honey.*—The demand for comb honey is improving some, but prices are about the same. We quote: No. 1 white 1-lb., 14@15; No. 2, 12@13; No. 1 amber, 13@14; No. 2, 10@11. Extracted, white, 6½@7; dark, 5@6. Beeswax, 20@22.

CLEMONS, MASON & CO.,
Feb. 8. Kansas City, Mo.

DETROIT.—*Honey.*—Best white comb honey, 15c; other grades, 12@14. Market not overstocked with either of the grades. Extracted, 7@8. Beeswax, 23@24.

M. H. HUNT,
Feb. 8. Bell Branch, Mich.

CLEVELAND.—*Honey.*—No. 1 white comb remains firm at 14c. Receipts are light and demand good. Beeswax, No. 1, 29c.

WILLIAMS BROS.,
Feb. 7. 80 & 82 Broadway, Cleveland, O.

MINNEAPOLIS.—*Honey.*—Fancy white, 16½@17½c; No. 1 white, 15½; fancy amber, 14@14½; No. 1 amber, 12½; fancy dark, 12½; No. 1 dark, 10½. Extracted, white, 6@7; amber, 6½; dark, 7.

J. A. SHEA & CO.,
116 First Avenue North, Minneapolis, Minn.

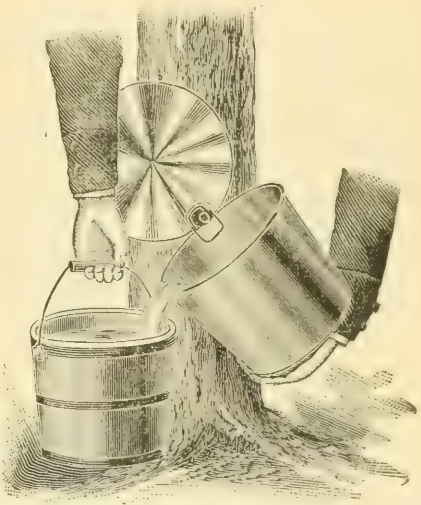
I still have about one ton of white-clover honey, and same amount of basswood, in new barrels containing about 325 bbls. each. Price on cars, 7 cents.

FRANK MCNAY, Mauston, Wis.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

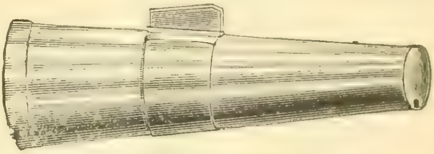
Maple-Sugar Supplies.

The time is at hand when those who produce the delicious sweets from the sugar maple must be getting ready. For the best results you must have good clean apparatus of the most approved type, and you really can not afford not to read Prof. Cook's book, "Maple Sugar and the Sugar-bush," which we furnish at 35c, or we will give a copy free to all those who buy sugar-makers' supplies of us to the amount of $10.00 or more. We do not sell evaporators, but we think we can do you some good on spouts, pails, covers, and cans. We have received a carload of these from the factory, and they are made of American tin-plate. The plates are tinned and made up into cans by the same firm; and by taking a carload we get them at bottom prices. See table below. The pails and cans are machine-made, far superior to hand-made, and guaranteed not to leak.



BUCKET WITH HINGED TIN COVER.

This cut shows the manner of hanging the bucket on the spout, and also the manner of emptying with the hinged tin cover. Most progressive sugar-makers nowadays use covers of some kind.



RECORD SAP SPOUT.

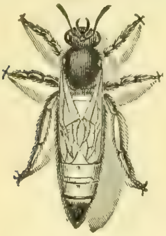
This spout is cheaper than any other made, and we believe it is as good as any, if not better. It is used almost exclusively in this section.

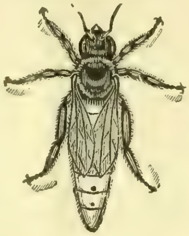
PRICE LIST OF PAILS, COVERS, SPILES, ETC.

	IC tin.	IX tin.
10-quart bright tin buckets, per 100...	$15 00	$17 00
12 " " " " " ...	16 00	18 00
15 " " " " " ...	18 00	21 00
Patent hinged tin covers, per 100....	$6 00	
Wood Reversible covers, per 100...	4 50	
Record sap-spouts, per 100........	$1 00; 1000 for	$8 00
1-gal. sq. cans "	11 00	
1 " " " 6 in a box, per box.	$ 90; 10 boxes	$ 8 50
1 " " " 10 in a box, per box.	1 40; " "	13 00
5 " " " not boxed, each.	30; 100.. ...	26 00
5 " " " 2 in a box, per box.	75; 10 for.	7 00
5 " " " 1 in a box, per box.	45; 10 for..	4 20

A. I. ROOT, MEDINA, OHIO.

IN THE FIELD. | **GOLDEN QUEENS, NUCLEI.** *CIRCULAR FREE.* | **J. F. Michael, German, Darke Co., Ohio.**

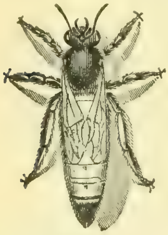

THREE BAND.

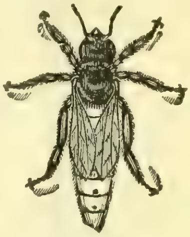

FIVE BAND.

Five Band.—What is the matter, sister? Why don't you come out?

Three Band.—Oh! I see so much talk about you yellow beauties I am afraid I am going to be stamped out.

Five Band.—No, no! Jennie Atchley says we are sisters, and that she has tested us both for honey, and finds no difference; and she tells us to get down side by side, and let the people choose for themselves.


THREE BAND.


FIVE BAND.

Three and five bands, raised in separate yards, untested, $1.00 each; $5.00 for 6, or $9.00 per dozen, March, April, and May; June and after, 75c each; $4.25 for 6, or $8.00 per dozen. Safe arrival and satisfaction guaranteed. Fine breeder, $5.00. Catalogue free. Let me book your orders.

Jennie Atchley, Beeville, Bee Co., Tex.

☞In responding to this advertisement mention GLEANINGS

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10 ct. stamp for "Practical Hints to Bee-keepers."

MONEY IN SMALL FRUIT. Send Postal Card to me and get my prices for plants of all the leading varieties of Strawberries, Raspberries, Blackberries, Currants, and Grapes with directions for planting, etc. I pack plants carefully, and guarantee them to reach you in good shape. My plants are grown on rich soil, and dug fresh from the ground when shipped.

Address **EZRA G. SMITH.**
MANCHESTER, ONTARIO CO., N. Y.

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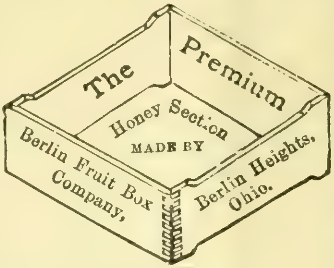

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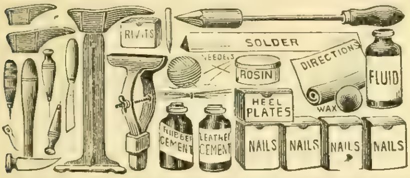

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I also have a carload of A. I. Root's Dovetailed hives and Bee-supplies to accommodate my Southern customers. Dadant's foundation and Bingham smokers. Send for catalogue.

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

Published by A. I. Root.
$1.00 per Year. Medina Ohio

Vol. XXII. FEB. 15, 1894. No. 4.

STRAY STRAWS
FROM DR. C. C. MILLER.

Only two weeks more of winter.

That plan on p. 99, of giving a page of reports in 2 inches of space, is capital.

Editor York has one requisite toward getting up a good paper—a happy home. I sampled it lately, so I know.

Sorghum was fed by N. E. Cleveland, Miss., to 5 colonies in October. Dec. 23 four were dead and the fifth nearly gone.

W. B. Webster, a prominent writer in the *B. B. J.*, claims that cross bees, as a rule, are not as good workers as gentle ones.

Illinois didn't do a big thing in honey last year. The average of reports made at State convention was 8 lbs. per colony.

Are wild cucumbers of several kinds? On p. 90 you speak of "the original vine." They are plentiful in this region, but annuals.

Bees prepared for winter Sept. 1 show up better and stronger in spring than those prepared Oct. 1, says W. Woodley in *British B. J.*

German bee-keepers are protesting against a law that prohibits the temporary placing of hives within two miles of permanent apiaries.

Special-topic numbers seem on the increase among bee-journals. The *Canadian* starts it under the name of "Bee-keepers' Parliament."

The British "standard" frame is 14 x 8½. Seven such about equal five Simplicities. The square Gallup is a little larger than the British.

St. Joe is the name of a hive two of my friends have sent me circulars about. Won't the chap that named that hive catch it if Bro. Abbott, of Saint Joseph, gets after him?

Herr Reepen crows—and well he may—that the oldest bee-book in the world is in German. It is "Der Bienbock," Thomas Cantibratensis, 1448, and is owned by F. H. Wytopil, Vienna, and cost $55. I think no bee-book was published in this country till after 1492.

Keep still, by all means, about adulteration; at least, don't let any thing about it get into print, if you want to please—the adulterators.

Foreign competition is just now a topic of interest in England, and the suggestion is offered that "steps must be taken in a body" against foreign honey now sold at [illegible] cts. a pound.

The British B. J. characterizes syrup-feeding to increase the yield of surplus as "a nefarious and dishonest practice, calculated to do serious harm to an otherwise legitimate and delightful pursuit."

Brace-combs are caused, according to E. J. Cronkleton, in *A. B. J.*, by loose swinging combs. The bees feel their shaking, and fall to work to brace up. But it doesn't seem that a bee's step ought to jar much.

Hill device improved. Place two wood separators of proper length, about an inch apart; bow them up in the middle, and stick the ends down on the inside of the hive at both sides.—*Marion Miller, in Progressive.*

Eight-frame hives are preferred by comb-honey men, almost without exception. How many have proved, by a fair and square trial of 8 frames, side by side with 10 frames, which was better? I commend this to experimenter Taylor.

A stubborn colony can be made to swarm, according to an item in *Centralblatt*, by hanging a caged virgin queen between the combs. The old queen gets out. Now tell us what to hang between the combs so the other colonies *won't* swarm.

The Dzierzon theory occasioned a bitter war of words about 50 years ago. After holding undisputed sway for years, it has again become a bone of contention—Reepen, Schœnfeld, and others, defending it against no less an opponent than Dzierzon himself!

Some say honey extracted from the brood-chamber can't be as good as from a super. There may be more floating pollen in the brood-chamber, and an occasional larva thrown out brings with it the larval food, thus spoiling the flavor as well as bringing on fermentation.

Wilder Grahame's advice, to raise regular patches of white clover convenient to a large apiary to keep bees busy and keep out other honey, is Wilder advice than often gets into Gleanings, How large a patch, and how convenient to a large apiary, to accomplish the object?

An octogenarian in Germany ascribes much of his good health to drinking *honey tea*—a table-spoonful of best honey in a teacup of boiling water. I've tried it a good many times, and find it a refreshing drink. You may or may not like it. For convenience, keep some honey thinned in advance.

The British Bee Journal says that, Jan. 5, in the suburbs of London, the thermometer marked 10° above zero, "a lower point than it has done for many a year." When I read that, I went in my shirt-sleeves to look at my thermometer, and found it 25 degrees lower, in the middle of a bright sunshiny day.

Wasps are troublesome across the water, but not on this side, as I mentioned in a former Straw. Herr Reepen replies that our troublesome skunks are unknown there. But he sha'n't have the last word, and I rise to tell him we're not so cruel to children as they are in Germany. Just think of making little children use a language that floors an old chap like me!

A few years ago there were hundreds of small cabinet-shops scattered over the country, making furniture by hand or with light power, but they have all disappeared, so far as manufacturing is concerned. The large factories are doing it all, and we now get better and cheaper furniture. I predict the same future for the bee-supply trade.—*M. H. Hunt, at Mich. Convention.*

GENERAL CORRESPONDENCE

Our Symposium on Bees and Fruit.

Valuable Testimony Supporting the Bee.

A Lively Discussion, Pro and Con.

We will first let those on the negative side give their arguments. These will then be followed by those on the affirmative.—Ed.]

BEES NOT NECESSARY TO THE PROPER FERTILIZATION OF FRUIT-BLOOM.

By W. S. Fultz.

In studying this question I have tried to do so in an unprejudiced manner, being both a bee-keeper and fruit-grower. I have looked at it from both standpoints. Why all bee-keepers, in trying to discuss this question, always merge it into that of spraying and the destruction of fruit by bees, is more than I can understand. There seems to be such a strong undercurrent of feeling among them all in that direction, it naturally leads the public to believe that they have an ax to grind, and that they seek every opportunity to get it on the grindstone.

As a fruit-grower I have my own ideas of those other questions; and my experience of 20 years in the business, with an apiary on the same farm, has enabled me to decide those questions to my own satisfaction; but I do not think they have any bearing on the subject under discussion, and shall ignore them entirely. With me, in discussing this question, there is no "negro in the woodpile."

I now wish to draw attention to your editorial on page 61, in which you say that my arguments are based largely on negative testimony, and that Prof. Cook and the rest rely upon positive facts and figures. In my article I gave several instances where I had observed good crops raised without the aid of bees. If that is not positive evidence that crops can be so raised, then I must plead being ignorant as to what positive evidence is.

[Your evidence on this point is negative, because you produce no proof that the crop in question would not have been better by having bees. If for ten years *without* the bees your crops were good, and for ten years *with* the bees the crops were smaller and poorer, you would have evidence of positive character against the bee.—Ed.]

With regard to the experiments of Prof. Cook, Mr. Gilliland, and the others to whom you refer, I must say that, in my opinion, all such evidence is negative, or, rather, it is no evidence at all. When Prof. Cook and the others placed cheese-cloth or netting over the bloom with which they were experimenting they interfered with nature's methods of fertilization. I would almost as soon shut up a female hog in a latticed pen, where she would be kept entirely from all contact with her kind, and expect her to be fruitful and multiply, as to expect a fruit-bloom to become fertilized under the same conditions. Nature intended that a contact should take place to make that bloom fruitful; and Prof. Cook, and the others to whom you refer, covered those flowers and shut off nature's methods, and then asserted that, because the bees could not get to the flowers to fertilize them, they proved barren or nearly so. Had those flowers that were experimented with not been covered, so that nature could have performed her functions, it is safe to say that they would have been properly fertilized, even if no honey-bee had ever been near them.

[Your illustration of the hog in the pen is not a parallel case. Most fruit-blossoms will fertilize themselves to a large extent, but there is no self-fertilization in the animal kingdom.—Ed.]

Some other means must be resorted to, when making those experiments, than covering the bloom, otherwise all results will be negative. Any well-posted horticulturist could have told Prof. Cook what the probable results would be, at the commencement of his experiments, for they were just what might have been expected. The bloom operated upon was probably staminate, and produced pollen, and, as a natural consequence, became self-fertilized, and the result was an inferior product. I do not care to follow or analyze the article of Prof. Cook; his arguments and conclusions are all based on the same kind of experiments, and, as a consequence, are all of a negative nature, and of no force whatever.

Now, Mr. Editor, let us get at the gist of this question. In the article sent you by Mr. Doolittle, I simply made the assertion that the aid of honey-bees was not needed in the proper fertilization of fruit-bloom. Now I am going to make the broader assertion, that fertilization is not aided to any extent by them. This assertion is based on the fact that no horticulturist, however expert he may be in the art of artificial fertilization, can take the pollen from a honey-bee, and, without changing its condition, successfully fertilize a fruit-blossom. If an expert horticulturist can not do this, then how can a bee do it? The horticulturist's object is to fertilize; the bee's object is to gather the pollen and honey, and carry it to the hive. The instinct of the bee does not teach it how to prepare pollen for fertilization purposes. Man's knowledge and ingenuity do, and man can take the pollen from a bee, and, after properly preparing it, make it successful in fertilizing.

It would be an easy matter to test this thing. Let three or more persons in widely separated localities cover at least 100 fruit-blossoms (apple being the most plentiful would be preferred), in the same manner as was done by Prof. Cook and others. This should be done before the flowers were fully opened; then when they are open take a small pair of scissors and remove the stamens, so that self-fertilization can not take place, replacing the covers immediately, and let them remain until the pistil of the flowers are in a receptive condition, and then take pollen from honey-bees that are gathering it from the same kind of trees, and try to fertilize the covered bloom with it, just as it is taken from the bees. If such experiments are successful, then bees can assist in fertilizing fruit-bloom; but if they are a failure, as I am well satisfied they will be, then the claim that they do assist is not well founded, and should be dropped by the bee-keeping fraternity.

Wet or even damp pollen, as has been demonstrated by experiment, is not potent, and will not perform its intended function. This accounts for the fact that, when we have wet weather during fruit-bloom, we get no crop. The pistil of the flowers pass beyond their receptive state during the time that the pollen remains impotent; consequently no fertilization can take place that season.

Muscatine, Ia., Jan. 22.

[In view of the *bulk* of the testimony to the contrary appearing in this number, it is rather a strong statement to say that "fertilization is not to any extent aided" by the bees. As to the other points in your article, honest investigation courts fair criticism.—Ed.]

BEES AND FRUIT ON THE ISLANDS OF LAKE ERIE.

By Thaddeus Smith.

We ought to be able to get a satisfactory answer to this question by bringing together the facts about it, and looking at these facts with an unprejudiced mind, not committed to any particular theory, and not biased by self-interest. I have been a bee-keeper for over forty years, and I am also a fruit-grower, and I think I can look at both sides of the question in an impartial manner. I will say here, that I have changed my views about this matter, as I have done with some other cherished views of bee culture that I was taught and have taught others.

I live upon an island; and when I came here 25 years ago there were but two colonies of bees here. These I bought and immediately Italianized, and engaged in raising queens, as there were no black bees here to mix with them. The fruit here 25 years ago was more certain, and less affected by disease, than it has been for several years just past. The bees have increased to 100 or more colonies, and have been distributed to various parts of the island. Shall I say the increase of bees is the cause of the decrease of quantity and quality of fruit? No, far from it. But such is the kind of argument used by some on the affirmative of this question.

Not very long ago I read a communication to one of our bee-papers, stating that the writer had put some stands of bees in *one corner* of his garden, or yard, and that the fruit-trees in that part of the garden had given a good crop of fruit, while the trees in the other corner of the garden had failed in fruit. This statement was given to show what a great advantage bees were in fertilizing bloom. Will any intelligent bee-keeper accept this experiment as a knock-down argument?

I have never met Prof. Cook; but from his writings and character I have learned to esteem him very highly. In fact, I have been almost ready, as the saying is, to swear by any thing that Prof. Cook would say. But in the article republished in Gleanings he has certainly deduced some unwarrantable conclusions from some facts stated. For instance, he says: "I have often noticed the fact, that, if we have rain and cold all during the fruit-bloom, even trees that bloom fully are almost sure to bear sparingly." This is accounted for by Prof. Cook, solely because it was too cold for the bees to fly. But is there not a much better reason to account for this failure to fruit? Every fruit-grower knows that these cold rains fill the bloom with water, and sometimes ice, and is as destructive to the embryo fruit as a heavy frost. This damp cold weather would also prevent pollen from being carried about by the wind. Again, Prof. C. covered some fruit-blooms with *cheese-cloth*, and the result was they were not fertilized as well as those left uncovered. Any one would have naturally expected this, as this cheese-cloth would certainly keep off the pollen floated about by the wind. Did he or any one else see the bees visit those uncovered blossoms? If not, why make such a positive statement that the bees were the sole cause of their fertilization?

But it is not my intention to criticise the articles in Gleanings, but to give some facts bearing upon the subject. Within ten miles of me there is a tight little island in Lake Erie where no bees are kept; and it is so far from main land, and other places where bees are kept, that bees never visit it. This island is almost entirely used for fruit-growing, and a success is made of it. But the editor of Gleanings says, "That fruit has grown where no bees were known, *proves nothing*." Let's see. I have a friend on this same island devoted to growing fine fruit; and his fruit, whether of apples, pears, plums, or cherries, or his especial pride, strawberries and raspberries, can not be grown to any greater perfection upon any land of the same quality in the State of Ohio, though there were 100 stands of bees in the "corner of the garden." But this may "prove nothing," except the old adage,

> Convince a man against his will,
> He's of the same opinion still.

It may be said that, in the absence of bees, other insects may have fertilized the fruit-bloom. Well, if other insects fertilize the bloom so perfectly, why say that *bees are necessary* to do it? But Prof. Cook shows the improbability of the other insect theory. He says, in the same article quoted before, "Early in the season in our northern latitude most insects are scarce. The severe winters so thin their numbers that we find barely one; whereas we can find hundreds in late summer," etc., showing conclusively that the fine fruit of this place was not owing to insect fertilization.

And now for the "bumble-bee." Every one will admit that it is a *hum*-bug; and I think this red-clover-seed theory connected with it is the biggest kind of a humbug. There are but few bumble-bees on this island, some seasons scarcely any. For every single bumble-bee here, I believe there are ten thousand, and, I might safely say, ten million clover-heads. In a favorable season, red clover makes a fine yield of seed here. It would simply be impossible for the bumble-bees to visit all the heads containing seed.

Pelee Island, Ont.

[Perhaps some unwarranted conclusions have been drawn by both sides; if so, let's have the fallacies shown up. While you are peculiarly well situated for getting facts, some of *your* conclusions will not stand the closest scrutiny. For instance, you say you have a friend, a fruit-grower, on an island where no bees exist, whose fruit "can not be grown to any greater perfection upon any land of the same quality," where there are 100 stands of bees. We ask, how do you *know* this? and what do you mean by perfection? The fruit may be "perfection" in your estimation, but how do you know that it would not be better if bees were present at blossom time? We insist, again, that it does not prove much to assert that a friend of yours grows the "perfection of fruit" on an island remote from bees. If he had grown fruit for ten years *without* bees and then ten years *with* the bees, there would then be an opportunity for a *fairer* comparison. Again, in your last paragraph you say nothing about the possibilities of the Italians fertilizing the red clover. The probabilities are, that the ordinary hive-bees do ten times more pollen-scattering on these big clovers, because of their numbers, than the bumble-bees. Here, again, if all bees were removed, both bumble-bees and hive-bees, for a few seasons, from access to red clover, and then again for a few seasons allowed to visit the blossoms, the test would be fairer; and then, how do you know that the bumble-bees do not do their share? As we see it, friend Smith, you have unconsciously fallen into the same error in drawing conclusions that you find in the writings of those who affirm that bees do assist in scattering pollen.—Ed.]

THE ELEMENTS OF UNCERTAINTY IN THE RECENT DISCUSSION.

By John C. Gilliland.

There are some well-known facts to be taken into consideration in the discussion of animal life aiding in the fertilization of blossoms and plants. We know, both by revelation and geology, that plants were created before animal life, and had power within themselves to perfect seed, and in their natural forms do so yet. While all forms of plants and animal life are more or less dependent on each other, the lower forms are more independent than the higher. Commencing with the lowest, each new creation was for and looking to a higher order, and all orders of animal life are dependent on plants for continued existence. All orders, whether of plants or animal life, were good, and for a good purpose at first; and the evil and conflict we see is only perverted good. There is nothing evil of itself, as all evil is only perverted good. By the power of his intelligence and selection, man has changed the form and use of many kinds of both plants and animals; and who shall say that the lower forms of animal life have not done the same? e real question is, How much increase is there in seed production of plants by insect aid? Are not plants entirely dependent on insect aid for seed production? All progress made is only filling the duty to "go forth and multiply and replenish the earth, and subdue it." By observation and experiment we find what orders of plants and animals are useful, or can be so changed as to be useful, and what order will aid us in making the change, and then aid the development of the useful. Also, find the orders injurious, and destroy them. If we could get all the people in the world to see and think, the progress in subduing the earth would be as great in five or ten years as in all the ages past by the few great minds who have thought and seen things as they are and might be.

There are several elements of uncertainty in the facts stated on both sides in Jan. 15th GLEANINGS. Where fruit and seed do not develop when cold and rain prevent insect visits when blossoms are open, the same causes prevent the normal development of pollen, and, by washing off what is developed, prevent it from fertilizing the blossoms. When a single blossom is covered to keep off insects, it also, to a certain extent, prevents the wind from carrying the pollen of other blossoms to it to aid in its fertilization. A single blossom covered may not fertilize itself; but if a whole tree were covered, enough blossoms might be fertilized to yield a crop of fruit. I saw this chance for error last year in my experiments, and for this reason intend to cover all the plants on three or four feet square by driving stakes and covering with netting, then gather the ripe seed each ten days, also ripe seed on a like space by the side of the covered, and find the seed in each lot at each gathering. This will take out nearly all the elements of uncertainty, and tell whether the time of blooming or temperature has an effect on seed production.

I suggest the bee-keepers make experiments on this question this year on different fruit-trees and other plants, not covering a single blossom by itself, but have a large number under the cover, carefully taking notes of weather, rain, cold, and whether bees worked freely on uncovered blossoms; then how much fruit or seeds produced from same number of blossoms under each condition, leaving nothing to guess at or state from memory. I should especially like to have E. R. Root, G. M. Doolittle, C. C. Miller, and Prof. Cook make the experiment; then if A. I. Root will hold off publication of that leaflet until fall we may have some very interesting reading for the public. Cheese-cloth is very cheap, and it will not cost much to cover a whole tree.

Bloomfield, Ind., Jan. 20.

[Covering certain blossoms and not others may bring in some elements of uncertainty, as you say; but the fact that all the experiments made by Prof. Cook and others point pretty strongly toward the agency of the bees, is pretty good proof. However, we are sure all candid bee-keepers want to go to the bottom of things; and we hope that, ere another year, the experiment will be tried by several in the way you indicate. We will publish the pamphlet now, and by fall may get out another. The information already secured is too good to hold. If the covering of individual blossoms to some seems objectionable, perhaps the following will answer.—ED.:]

THE TWO SIDES OF A TREE.

Our apple-orchard is situated in such a way that it is exposed to both the north and south winds. About four years ago, as the trees on the south row (Transcendenteral, that throws out a heavy growth of foliage at the same time it blooms) began to open its bloom, a heavy south wind prevailed for about five days. I noticed, during this period, that the bees could not touch the bloom on the south side of these trees, but worked merrily on the more sheltered limbs of the north side. What was the result? Those limbs on the north side were well loaded with fruit, while on the south side there was almost none to be seen. Does this prove that these trees depend on the aid of insects to fertilize the bloom? I leave it to the judgment of the reader. F. M. MERRITT.

Andrew, Ia., Jan. 19.

TESTIMONY FROM A FRUIT-GROWER.

Mr. Root:—Find inclosed an article on "Bees for Fruit-growers," written by the editor, Chas. A. Green, and clipped from *Green's Fruit-grower*, published at Rochester, N. Y. Mr. Green is quite a distinguished and well-known fruit-grower of Western New York, and is eminently qualified to judge on the fertilization of fruit-blossoms by the bees. F. H. FARGO.

Batavia, N. Y., Jan. 25.

Is the honey-bee beneficial or detrimental to fruit-growers? This has been an open question for many years. It has been contended by some, erroneously, that bees puncture grapes, peaches, and other fruit when ripe, greatly to the injury of the fruit. At the same time, it has been noticed that bees frequent the berry-fields and the orchards in great numbers during the blossoming season. It was granted that, in a few cases, bees might be beneficial in fertilizing the blossoms, more particularly of the strawberry, which was known to be often pistillate.

It has now become demonstrated that many kinds of fruits, if not all kinds, are greatly benefited by the bees, and that a large portion of our fruit, such as the apple, pear, and particularly the plum, would be barren were it not for the helpful work of the honey-bee. This discovery is largely owing to Prof. Waite, of the Agricultural Department at Washington. Prof. Waite covered the blossoms of pears, apples, and plums, with netting, excluding the bees, and found that such protected blossoms of many varieties of apple and pear yielded no fruit. In some varieties there was no exception to the rule, and he was convinced that large orchards of Bartlett pears, planted distant from other varieties, would be utterly barren were it not for the work of the bees, and even then they could not be profitably grown unless every third or fourth row in the orchard was planted to Clapp's Favorite, or some other variety that was capable of fertilizing the blossoms of the Bartlett.

In other words, he found that the Bartlett pear could no more fertilize its own blossoms than the Crescent strawberry. We have already learned that certain kinds of plums will not fertilize their own blossoms, such as the Wild Goose, etc.

The fruit-growers of the country are greatly indebted to Prof. Waite for the discovery he has made. The lesson is, that fruit-growers must become interested in bees, *and I do not doubt that within a few years it will be a rare thing to find a fruit-grower who does not keep honey-bees*, the prime object being to employ the bees in carrying pollen from one blossom to another from the fields of small fruits as well as for the large fruits.

Think of the changes that have occurred in the last twenty years. In olden times there were as many bees as there are now, and there were not a thousandth part as many orchards or berry-fields as now. Therefore, if the honey-bee has to visit the blossoms as in olden times it will have to visit one thousand, where in olden times they had to visit only one blossom. I verily believe that the barrenness of many orchards may be owing to the scarcity of bees.

During some seasons, the scarcity of bees may be less noticed than other seasons. If the season is a dry one during the blossoming time, many blossoms are fertilized by the winds and other insects than the honey-bee; but if the season is wet, and prolonged rains occur, the honey-bee has no power to fulfill its helpful mission.

This is a question that should receive the attention of every fruit-grower. The honey-bee is useful and profitable by itself alone. C. A. GREEN.

BEES AND FLOWERS.

By G. M. Doolittle.

It was with more than usual interest that I read the different views relative to the aid bees render in the matter of fertilizing flowers of various kinds, in the last number of GLEANINGS; but what interested me still more was the fact that friends Root proposed to put the pros and cons of the whole matter in pamphlet form for general distribution. This is something we have needed for a long time, and, if I am not greatly mistaken, the doing of this will have a greater influence toward dispelling the mist which has gathered before the eyes of the farmer and horticulturist — gathered more largely through jealousy than otherwise, than any thing heretofore done. I said *jealousy* had been largely the cause of this mist gathering before the eyes of the horticulturist and farmer. I think I hear some one ask why these should be jealous. Only from that innate weakness, common to all, that causes a restlessness to come over us at seeing others more prosperous than we are. No sooner did it go out that Doolittle was making money out of bees than a few about me began looking around; and when they saw bees at work on the bloom in their orchards, meadows, and buckwheat-fields, they began to reason that Doolittle was getting rich from that which belonged to them, and from this sprang the thought that the saccharine matter found in the flowers was placed there for the development of the fruit; and as the bees took away this sweet as fast as it was secreted by the flowers, an injury must result to the product coming from these flowers and their fields, which injury did much to enhance Doolittle's gains.

Since going into the queen business I have heard less of this than formerly; but from my own experience I doubt not that every prosperous bee-keeper has either heard something similar to this, or, if he has not heard it, his neighbors have talked it when not heard by him. I have even been asked for ten pounds of nice comb honey as pay for what honey the bees gathered from a ten-acre lot of Canada thistles which the owner of the land had allowed to grow up through his shiftlessness.

Such a pamphlet as the one proposed will do away with all this way of thinking, if placed in the hands of those about us before they begin to be jealous; and instead of their thinking that we are getting rich off their broad acres they will welcome the bee-keepers of the land as a blessing in helping them to secure good crops of fruit and grain.

It will be remembered that I have taken a little different view of the matter than most of the writers on this subject; and as I believe this view is the right one, I wish to say a few words further by way of emphasis in the matter. The view I hold to, and, as I believe, the only *right* view, is, that the first object of honey in the flowers was *not* as a food or luxury for man, nor even to sustain the life of the bees, but as a means to an end, and that end was, that the fruit, or female blossoms of plants, which could not be possibly fertilized in any other way, might be fertilized through the agency of insects which would be attracted to these flowers by the tempting and attractive morsels of sweet they spread out before them as a sumptuous feast, while honey as food for the bee and for the use of man came in as a secondary item. As Gregory puts it in his treatise on squashes, "The *primary* reason why a squash grows, is, to protect and afford nutriment to the seed—the use of it as food being a secondary matter," and the same reason holds good when we look into this honey matter. Why is honey placed in the flowers? To attract insects that the blossoms may be properly fertilized, *primarily;* and, secondly, for food for these insects, which food for insects, in case of the bee, is utilized by man.

Why I come to quote Gregory, as above, was because I knew he said something that was favorable toward the bee side of this fertilizing matter; and in looking it up I ran across the sentence quoted above. As Gregory is not a bee-keeper, what he says can be taken as an unbiased decision. Here is what he says for the bee along this line: "The female blossoms of the squash are so covered and hidden by the tall leaves, that it is evident that the fertilizing pollen must be conveyed to them by the bees, to whom the squash-field appears to be a rich harvest field. All of the crossing or mixing of squashes is caused by the pollen from the male flowers of one variety being carried by the bees to the female flowers of another variety." He further states, that, if the bees are kept from these female blossoms by means of netting or otherwise, the embryo squash, at their base, will always turn yellow and die, unless pollen is carried by man from the male to the female blossoms, as is done in the hybridizing of squashes to produce different varieties. Here is something for Mr. Fultz and the doubting ones to disprove before they can establish the merits of their side of the matter, for I aver that, if honey is placed in any one flower to attract insects so that seed can be perfected, and if no seed can be perfected without these insects, in that variety of flower, then honey was placed in all flowers which secrete nectar, for the sole purpose of attracting insects as aids in their fertilization, and that fruitage to its highest perfection can not be obtained except by the aid of these insects which are attracted by this nectar. I also aver, that, if the above is true, and I can see no logical reason why it is not, then all plants and trees whose blossoms do not secrete honey are capable of self-fertilization through the agency of the breeze or otherwise; hence the taking of all classes of plants and nut-bearing trees to sustain an opposite theory is fallacious, and not worthy of the best efforts of any person. As a matter of history that should go into the pamphlet to make it complete, I would cite the case of bees being banished, years ago, by statute, from the town of Wenham, Mass., on account of their supposed injury to the apple crop of that town. While so banished, the interior orchards of the town gave scarcely any fruit, the little given being very imperfect; while all around the borders, where bees were kept, the fruit set and perfected in the usual style. After a few years of such conclusive proof as this, that the bees were the orchardists' best friend, the law was stricken from the statute, and the bees invited back, to the perfect satisfaction of all concerned.

Again, I wish to note, as a matter of history, that, during the past season of 1893, very little buckwheat honey was secured from the buckwheat regions of the State of New York—so little that we have had, for the first time in my remembrance, buckwheat honey selling in our markets for nearly if not quite the same price as No. 1 clover honey, while it usually sells for about two-thirds the price of clover honey. And what has been the result? Why, the unheard-of thing of buckwheat grain bringing 75 cts. a bushel, on account of its scarcity, while the best of white wheat is selling at only 62 cts. per bushel. As a general thing, buckwheat brings from one-half to two-thirds the price of wheat. That it now brings nearly one-fourth more than the best of wheat tells very largely, under the circumstances, on the side of the bee.

Borodino, N. Y., Jan. 22.

[The following is an extract from a recent government bulletin entitled *Insect Life*, page 254.—Ed.]

BEES OF GREAT VALUE TO FRUIT AND SEED GROWERS.

By Frank Benton.

At last fruit-growers and bee-keepers are getting into right relations with each other. The numerous discussions which have taken place regarding the value of bees as fertilizers of fruit-blossoms, and of those blossoms of plants grown for their seeds, and regarding the alleged damage to fruit by bees, have led to close observation and careful experimentation, the results of which show that the interests of these two classes of producers conflict in but trifling respects—that, in fact, bee-keepers and fruit-growers are of great help to each other, and indispensable if each is to obtain the best results in his work.

Bee-keepers have never complained but that the growing of fruit in the vicinity of their apiaries was a great benefit to their interests, hence their position has been merely a defensive one, the battle waxing warm only when poisonous substances were set out to kill off the bees, or when fruit-growers sprayed their orchards with poisonous insecticides during the time the trees were in blossom; or, again, when efforts were made to secure by legislation the removal of bees from a certain locality as nuisances. Fruit-growers first relented when close observation and experiment showed that wasps bite open tender fruits; that birds peck them; that they crack under the action of sun and rains, and hail sometimes cuts them, the bees coming in only to save the wasting juices of the injured fruit. The wide publicity given to the results of the experiments made under the direction of the United States entomologist, and published in the report of the Commissioner of Agriculture for 1885, have no doubt contributed much to secure this change among fruit-growers.

But now it would appear that the bees have not only been vindicated, but that, in the future, fruit-growers are likely to be generally regarded as more indebted to bee-keepers than the latter are to the fruit-growers, for the amount of honey the bees secure from fruit-blossoms comes far short of equaling in value that part of the fruit crop which many accurate observations and experiments indicate is due to the complete cross-fertilization of the blossoms by bees. The observations and researches of Hildebrand, Müller, Delpino, Darwin, and others, as well as the excellent explanation of the subject in Cheshire's recent work,* have gone far to prove how greatly blossoms depend upon the agency of bees for their fertilization and hence for the production of seeds and fruits.

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* "Bees and Bee-keeping Scientific and Practical," by Frank R. Cheshire, F. L. S., F. R. M. S., Vol. I., pp. 279-328.

The facts they have brought forward are gradually becoming more widely known among fruit-growers and bee-keepers, and additional evidence accumulates. A case illustrating very clearly the value of bees in an orchard has recently come to the notice of the writer, and its authenticity is confirmed by correspondence with the parties named, who are gentlemen of long and extensive experience in fruit-growing, recognized in their locality as being authorities, particularly in regard to cherry culture. The facts are these: For several years the cherry crop of Vaca Valley, in Solano Co., Cal., has not been good, although it was formerly quite sure. The partial or complete failures have been attributed to north winds, chilling rains, and similar climatic conditions; but in the minds of Messrs. Bassford, of Cherry Glen, these causes did not sufficiently account for all the cases of failure.

These gentlemen recollected that formerly, when the cherry crops were good, wild bees were very plentiful in the valley, and hence thought perhaps the lack of fruit since most of the bees had disappeared might be due to imperfect distribution of the pollen of the blossoms. To test the matter they placed, therefore, several hives of bees in their orchard in 1890. The result was striking, for the Bassford orchard bore a good crop of cherries, while other growers in the valley who had no bees found their crops entire or partial failures. This year (1891) Messrs. Bassford had some sixty-five hives of bees in their orchard, and Mr. H. A. Bassford writes to the Entomologist: "Our crop was good this season, and we attribute it to the bees." And he adds further:

> Since we have been keeping bees our cherry crop has been much larger than formerly, while those orchards nearest us, five miles from here, where no bees are kept, have produced but light crops.

The *Vacaville Enterprise* said last spring, when referring to the result of the experiment for 1890:

> Other orchardists are watching this enterprise with great interest, and may conclude that, to succeed in cherry culture, a bee hive and a cherry-orchard must be planted side by side.

And now that the result for 1891 is known, "others," so Mr. Bassford writes, "who have cherry-orchards in the valley are procuring bees to effect the fertilization of the blossoms."

HOW BLOSSOMS ARE FERTILIZED; WHY SOME FLOWERS ARE MORE GAUDY THAN OTHERS; EXPERIMENTS OF CHARLES DARWIN.

By J. E. Crane.

Many volumes have been published in several different languages upon the fertilization of flowers—the first by Christian Conrad Springel, in 1793; but the subject attracted but little attention until thirty or forty years later, since which many botanists have given the subject much attention. Our most eminent botanists now classify flowering plants in their relation to fertilization into two classes: *Anemophilous* and *Entomophilous*—literally, wind-lovers and insect-lovers. The flowers fertilized by the wind are dull in color, and nearly destitute of odor or honey. The sexes are frequently separated, either on the same or on separate plants. They produce a superabundance of pollen, light and dry, easily transported by the air or wind. Pines, firs, and other conifera, are familiar examples, which sometimes fill a forest with "showers of sulphur" when shedding their pollen. Our nut-bearing trees are examples among decidious trees. The grasses and grains are familiar to all. A kernel of corn will grow as well alone as with other plants; but "the ear will not fill" unless it can receive the wind-wafted pollen from neighboring plants. On the other hand, those plants which seem to have need of bees or other insects to carry their pollen from one flower to another have more showy blossoms, with bright colors, or white, which are showy at dusk, or they give out a strong perfume or nectar, or both. The pollen grains are moist or glutinous, or hairy, or otherwise so constructed as to adhere to the insects that visit them, and thus be carried from flower to flower. In this class of plants or flowers many ingenious arrangements are provided to secure cross-fertilization. One sex is found in one blossom, and the other in another, on the same plant, as in the squash and melon families. In other species the sexes are found upon separate plants, as the willow-trees. In some plants the pistils appear first, and become fertile before the stamens ripen their pollen. In others the stamens shed their vitalizing dust before the stigma of the pistil is ready to receive it.

The common red raspberry matures its pistils first, so that, unless the bees or other insects carry the pollen to it from other earlier blossoms, the fruit is imperfect.

The partridge-berry is very interesting. The blossoms upon about half of the plants produce their stamens first; the other half, the pistil. In a week or ten days the order is reversed in the same flowers.

Many flowers that invite insects appear to be capable of self-fertilization, and often are; but the pollen from some neighboring plant of the same species seems more potent. Some flowers are so constructed that the stamens are placed so that their pollen can not fall upon the stigma of the same flower, but with special adaptation for the transport of pollen by insects from one flower to another. One curious plant produces small inconspicuous flowers early in the season, capable of self-fertilization; later in the season it produces more showy flowers that can become fertile only through the agency of insects.

Many plants remain constantly barren unless they receive the visits of insects. Many of your readers have doubtless observed how the fucshia or begonia never produces seed in a closed room; yet, when set out of doors in summer, they seed abundantly. Still other plants never produce seed because the insects that feed upon their blossoms have not been imported with the plants.

But this is a large subject, and to me one of great interest, as I study the many ways the

Author of nature has provided for the best good of all his works. A large number of examples have been given of the value of bees as agents in the production of fruit and seed, but I will give one or two more.

Mr. H. A. March, of Puget Sound, while here last summer, informed me that he produced large quantities of California seed, and found bees very valuable, as the seed was much more abundant when bees were provided to work on the flowers.

The stone fruits seem almost incapable of self-fertilization, as is often proved by trying to grow peaches under glass, success seeming to come only when bees are provided when the trees are in bloom.

A curious problem has presented itself to the horticulturists of this country for a number of years past, in the refusal of some varieties of the chicka plum to produce fruit in the Northern States unless set near some other variety or species of plum, that insects might carry the pollen from one to the other. Such a tree I can see from my window as I write, that is a bank of bloom every spring, but has never, to my knowledge, produced a crop of fruit.

Now, suppose it were true that all trees or plants that produce fruit or seed of value for the use of man would become fertile without the aid of bees or other insects, would it prove them of no value? Not at all. Enough has been written to show that the Creator has desired cross-fertilization among plants, and has wisely provided for it in a multitude of ways; and the chances of such fertilization appear to be as great among plants as among our bees, for which such special arrangement has been made. We might assume it to be valuable or necessary, even if we could see no good reason for it. We all know that birds or domestic animals will prove fruitful for one or perhaps several generations in spite of the intermarriage of near relations; but it is, I believe, the universal experience that such unions are most unwise, and, as a rule, prove injurious.

Some twenty-five or thirty years ago Charles Darwin, in studying this subject, and noting the provisions of nature for the cross-fertilization of flowers, became so much interested in it that he began a large number of experiments to test the value of insects in cross-fertilization, and the effects of cross and self fertilization upon plants. His experiments were conducted with great care and continued through several years; and his book on the effects of "Cross and Self Fertilization," describing these experiments, containing several hundred pages, is very interesting reading to say the least.

Of some 125 plants experimented with, more than half were, when insects were excluded, either quite sterile or produced less than half as much seed as when insects were allowed to visit them. Among his catalogue of these plants I notice the white and red clover. His experiments with these are very similar to those of Prof. Cook, late of Michigan Agricultural College. He says, page 361, of red clover, "One hundred flower-heads on a plant protected by a net did not produce a single seed, while 100 heads on plants growing outside, which were visited by bees, yielded 68 grains of weight of seeds; and as 80 seeds weighed two grains, the hundred heads must have yielded 2720 seeds. His experience with white clover was nearly the same.

Another most interesting result of his experiments was that plants grown from seed from self-fertilized flowers were, as a rule, when grown side by side with seed from cross-fertilized flowers, much less vigorous, although in other respects the conditions were as nearly alike as it was possible to make them. On page 371 he says, "The simple fact of the necessity in many cases of extraneous aid for the transport of the pollen, and the many contrivances for this purpose, render it highly probable that some great benefit is thus gained; and this conclusion has now been firmly established by the superior growth, vigor, and fertility of plants of crossed parentage over those of self-fertilized parentage."

Middlebury, Vt., Feb. 8.

STRONG EVIDENCE FROM CANADA, ON BEES AS FERTILIZERS.

By Allen Pringle.

It would seem that there are two sides (and sometimes more) to every question outside of mathematics. Until I read the pros and cons on the above subject in the last issue of GLEANINGS I had supposed that this matter was settled, and fairly within the category of what is called "exact science." While my own opinion on the subject remains unchanged, I realize the fact that others have contrary opinions; and, hence, line upon line, fact upon fact, and argument upon argument, may be necessary to establish what is already established. The subject is one of practical importance to bee-keepers, and this is sufficient justification for the space given and the invitation to discuss. As is often the case in such controversies, both sides are right and both wrong—that is, partially so. It is more than probable that the bee-keepers have been claiming too much for the bees in the fertilization of fruit-bloom; and now "the party of the other part" is going too far the other way, and denying them any credit or function in the matter at all. When the bees were attacked by the fruit-men as the enemies of ripe fruit, and all sorts of charges made against them, the bee-keepers felt called upon to defend their pets, and in so doing discovered that there could be no fruit raised without bees, and told the fruit-men so, and the whole world also. This was a mistake. Fruit may be raised without the aid of the honey-bee. There are other means of fertilization and cross-fertilization—other winged insects—the wings of the wind, etc. But for certain fruits and clovers, the bee is, *par excellence*, *the* ministering angel in their fruition. Let no one deny this. The man of experience, as well as the man of science, will contradict him if he does.

I have kept bees for 30 years, and have grown fruit and clover alongside for 30 years. I have also studied a little and experimented a little in this line as well as many other lines. As to some kinds of fruit—notably apples—I have observed that if, during the bloom, the weather was such that neither the winged insects nor the wind (being wet and cold) could perform their function with the flowers, the fruit was *non est*. When the weather at other times was favorable, and the bloom abundant, I have excluded the bees from certain portions of the tree, only to find the fruit also excluded—but only from those certain portions.

In the spring of 1892 I was summoned to appear before a legislative committee of the House of Assembly of Ontario, at Toronto, to give evidence as to the effects on the apiarian industry of spraying fruit-trees, while in bloom, with Paris green and other poisons. Our Ontario Bee-keepers' Association had moved for an act to prohibit the spraying while the trees were in bloom, as the bees were being poisoned in various places, and the spraying at such a time was unnecessary, and, indeed, injurious to the fruit as well as poisonous to the bees. The Minister of Agriculture, for the enlightenment and guidance of the legislative committee in a matter so important where the interests of the apiarists and horticulturists were alike involved, had summoned the leading men in both industries in the province to appear before the committee, to present the facts, the experiences, the pros and cons of both sides. The scientists were also summoned from Ottawa and Guelph—Dominion and Provincial entomologists — to speak for science. The questions of spraying, fertilization, etc., were discussed. The horticulturists, with one single exception, admitted the valuable and indispensable offices performed by the honey-bee in the fertilization of the fruit-bloom; and this was corroborated and confirmed by the entomologists. The fruit-growers agreed that "the bees play a very important part in cross-fertilization, and, therefore, should not be destroyed;" that "we are very generally dependent upon insects for the fertilization of our orchards. To destroy them to any extent would be very injurious to fruit growers."

Prof. James Fletcher, Dominion Entomologist, said, "Bees do not visit fruit-bloom in dull weather, and then we get little fruit in consequence." It may be well to quote Prof Fletcher here on a cognate point also, as being a high authority. He said: "As to bees injuring fruit, there is no direct evidence. Wasps may start the work, and then bees continue it. We have never been able to find a case of primary injury *by bees*." (See official report of meeting.)

The consensus of the meeting was, that "bee-keepers and fruit-growers are of great help to each other, and even indispensable, if each class is to obtain the best results in their work."

The act we sought of the legislature became law in this Province, as follows: "No person, in spraying or sprinkling fruit-trees, during the period within which such trees are in full bloom, shall use or cause to be used any mixture containing Paris green or any other poisonous substance *injurious to bees*." The penalty clause follows, which I need not quote.

The two following facts are well established; viz., that bees perform an important and well-nigh indispensable function in the fertilization of fruit-bloom; and that, in order to properly protect the fruit from the ravages of destructive insects, it is not necessary to apply the poisonous remedies at a time when the bees will be injured thereby—that is, during full bloom, when the bees visit the trees for nectar. Darwin, Hilderbrand, Müller, and other naturalists, have, by their observations and experiments, placed these matters (of such prime importance to the bee-keeper) beyond question.

Selby, Ontario.

[Although we have taken up eight pages in this issue, to say nothing of five or six taken up in a former issue, on the same subject, we are obliged to omit two or three good articles on the affirmative. We have put in all those on the negative side thus far received, and have endeavored to give it a perfectly fair hearing; but we think that, when our readers see the whole, they will acknowledge that the arguments on the bees' side, in number and variety, considerably overbalance those on the other side.

We have room only to say that Dr. Miller has followed up very closely the writer in the *Rural New-Yorker*, who held that bees have nothing whatever to do with the fertilizing of fruit-blossoms. Indeed, he has cornered him with an array of evidence that would be enough to convince almost any man except one who will not be convinced against his will. In a foot-note the editor of the *Rural* says he is not ready to give his say yet; but elsewhere, editorially, he puts in this pithy paragraph in favor of the bees:

> A word for the bees. In those great greenhouses near Boston, where early cucumbers are grown, it is always necessary to have one or two hives of bees inside to fertilize the flowers. No bees, no cucumbers, unless men go around with a brush and dust the pollen from one flower to another.

Whatever the negative has to say, this will be a hard nut for them to crack. If the bees are generally acknowledged to be an aid in greenhouse work, why not out doors? A few positive cases of this kind, are worth "bushels" of negative testimony from the other side.—Ed.]

UNJUST TAXATION OF BEES.

UNHOLY PRACTICES IN THE HOLY LAND; AN INTERESTING ARTICLE; CONCLUDED FROM OUR LAST ISSUE.

By Ph. J. Baldensperger.

In my previous article I spoke of the outrageous tax laid upon our hives, amounting to some $600 on 180 hives, or $3.33⅓ per hive. Our only resort now was to refuse to pay, and await events. As stated, we had apiaries in Judea and Philistia. Two of my brothers, Emile and Jean, were living near Bethlehem with their apiaries; my oldest brother, Henry, had taken his apiary toward Hebron, myself in Philistia. The apiary near Bethlehem was sequestered. Four negro guards were sent out to keep the bees, and prevent them from being moved. My brothers were allowed to work, take the honey, etc. Our bees—that is to say, a lot of them, were sold at auction in the town of Jerusalem; but as the people in general know very little about bees, they brought a very low price. It was ridiculous—I think something less than a dollar a hive. The silver money of the size of a dollar in Turkey is called a *majidi*—from the Sultan, Abd-el-Majeed, who first made them. As it is a rule in Turkey that the proprietor have the last word when a thing is sold at public auction, he has the choice of buying it himself; but when I came to the court I declared we were not inclined to buy our own bees at such a low price, so it was announced that they would come out to take the bees on a certain day. A young man who had gained some ideas of apiculture of us was hired to haul the bees on camelback, and take them to his home, where he would work them. My brothers put the bees all into supers—no bottom-boards—and the quilts were placed in a loose way. The entrances were not regulated, and we retreated to await the moment of departure. Triumphantly a gang of officials, guards, cameliers with 12 camels, and said youthful bee-keeper, came there and awaited the evening, with satirical remarks. The villagers, who had received bribes, were rolling for joy to see us deprived of bees.

When the sun was down they moved to the apiary, enjoying the deed they were about to perform. When the first hive was lifted, the bees rushed out, stinging. A second hive was tried with the same result, and with great consternation. They withdrew, and in Jerusalem accused us of having put out hives without bottoms, and that it was not lawful. Of course, there exists no law saying how bees are to be kept, and we said we chose to keep them as they were.

They then made up their mind to take hold of my brother Henry's apiary, near Hebron, and said they would do so. Accordingly, Henry and myself immediately began hauling; but a Mohammedan feast of atonement coming in, three days' leisure was left us, so we took Christian cameliers, and, while the roads on which they expected us to pass were guarded near Jerusalem, we passed a rough mountain way across the mountains of Judea. It seemed to us something like Hannibal crossing the Alps with his elephants, and a terrible time we had of it. It took us three nights to reach the plains of Philistia, out of reach of the Jerusalem Pashalik. Camels stumbled over rocks, and threw down their loads; ropes got loose, and hives fell off; the road was strewn with debris, like the way of an army in retreat; so my brother Henry remained behind to gather up, and had taken the food with him. A village of Mohammedans would not sell us even any bread. They said they had no bakers. A boy went around begging a few loaves, and I had to live on the beggar's share. We had carried our bees out of immediate danger of being seized. I waited again for new orders. We knew it would take considerable time for orders to be transmitted from Jerusalem to Gaza, for the district in which we settled was dependent on Gaza. The Jerusalem officials, as soon as the feast-days were over, set out to seize the bees in the Hebron district; but

When they came there the field was bare,
And so the poor Turks had none.

They found the Arab guardian, an old culprit and highway robber, who had turned from his wicked ways and tried to be honest, if God would be merciful to him and give him a good living, as he put it; a few empty hives remained as odd numbers. The camels take just eight hives each. On questioning him about the bees' whereabouts, he said he thought they must have swarmed, as he heard the bee-keeper say they do swarm sometimes. They explained the way of swarming as nearly as they could, but he insisted on the possibility of swarming hives and all.

Low-spirited they again returned to Jerusalem, and finally asked us if we would not prefer to treat with them, for in some way or other they expected us to prepare new tricks. They were not wrong, either, and we agreed to pay half the sum, payable in the course of the following year. This was one of the causes that led two of my brothers to turn their backs on such lawless countries, carrying a considerable number of hives with them. In the following year nobody would have any thing to do with bees, as the costs of this nearly two-years' process was about as much as the sum we paid, and we have, since then, been invited to settle affairs as best we thought, without any further annoyance. This has been done; and the villagers too, who had always benefited by our presence in their village, lost our patronage, and, what was worse, lost almost all their bees. It is well here to say that some of the false witnesses owned bees, and generally they believe that bees die off if a false witness is given concerning them, or a strife arises between bee-keepers. They had sworn falsely by king David, and those saints will punish such delinquents. They had assembled on Mt. Zion, near Jerusalem, and put their hands to the window of King David's mausoleum, and had sworn by the life of God and the prophet David that all they said concerning our sixfold hives was true, and some others had to swear that the men that swore were truthful.

Two years after, a beautiful apiary of some 300 hives was reduced to 30 hives, with almost no surplus honey, and the taxes to pay. They herein saw the just punishment for swearing at all; for, though false swearing is a deadly sin which the saint may kill on the spot, as they believe, still they believe, too, that swearing is no good, whether right or wrong, though they do swear for mere nothings, but not in such a solemn way as they did there. Years passed by, and the villagers use all their efforts to call us back. They very much regretted the annoyance, but their selfish regrets have led to nothing up to date, and meanwhile we have found better bee-pastures, and have kept out of their way. I mean my brothers have, for it is long since I closed accounts with the despicable fellahin of Palestine and Turkish misrule, and hope they may continue to leave in peace the bee-keepers settling in Palestine.

Though the honey resources of Palestine are excellent, the distance of the market, and, consequently, the cost of transportation to the nearest ports, Marseilles and Algiers or Trieste, together with the duty laid on honey, are so great that it would be preferable, if honey-raising were the only aim, to settle in some well-organized place, with a view of selling honey at a remunerative price, and avoiding the risk of shipment, besides the cost.

Nice, France.

[It seems that the publicans and sinners have not all passed away yet in Palestine. Strange how history repeats itself. These things would not be if Christianity still had a hold upon that land instead of Mohammedanism.—ED.]

HONEY IN THE SAN BERNARDINO MOUNTAINS.

HOW THEY CROWD OUT THE BEE-KEEPER.

By C. W. Dayton.

The following observations and conclusions were made in or close by the San Bernardino range of mountains, which begins at the coast on the west, and extend eastward for a distance of about 150 miles, entirely across the inhabited part of the southern portion of the State.

As all old bee-keepers know, and all new ones soon learn, there is little or no good honey obtained but by keeping the bees in the mountains; so we may journey for many miles across beeless tracts of farming or fruit country, until, reaching the mountains, we find located, one or two miles apart, along their base or in the numerous canyons, apiaries as regularly located as the stations indicated on the map of a main line of railroad. To place another apiary anywhere in the line is like adding another link to an already perfect chain. These apiaries contain from 50 to 500 colonies, as the location in the range of mountains is more or less favored in honey flora, and locations *do* thus exceed each other almost to the extent of ten to one.

The apiaries are placed at the point where the valley ends and the mountains assert themselves. First, because these mountains exceed nearly all others in abruptness, and can not be climbed except by prepared trails; and, again, the land close by them is formed of granite rock and gravel mixed, that has been washed down from the mountain sides for ages—land which becomes too sterile for peaches, prunes, grapes, or apricots under a few years' tillage.

When chaparel (greasewood) and sage are first cleared off, the land and the rubbish plowed under, it supports trees for a time, but is too high and dry for clover or alfalfa to grow; artificial fertilizers quickly disappear in the gravelly subearth; and, fruit failing to pay for expensive cultivation, the orchards are allowed to "play out," and the possessor of high-priced, nearly worthless land, goes into bee-keeping as a last sustaining straw, with the idea that bees "work for nothing and board themselves." Well "heeled in" they seldom take a journal, or produce comb honey, and construct their hives with the main intention of keeping "millers" out.

Farther from the mountains there is an underlying bed of hardpan which has, for years, caught and accumulated the richness from the higher lands, and nearly any crop may be grown, and all fruits are of better quality. While these mountain orchards are making astonishing growths, and producing fine specimens of fruit for a time, more "tender feet" are enticed from the frozen North and East to clear up new fields of greasewood and sage, and capitalists obtain their fancy prices.

Los Angeles is about midway along these mountains, and near there more chaparel grows than elsewhere, and the amount decreases either east or west toward San Jacinto or Ventura. The soil changes gradually from dark granite to limestone and whitish clay, and the different sages take the place of chaparel. In winter the sages are dead and light brown in color, and, with the light-colored rock and soil, the whole mountains receive the distinctive shade when viewed from a distance of twenty miles. The granite and chaparel covered mountains are known by their evergreen cast. The yields of honey the past season in the differently located apiaries has varied from 120 to

300 pounds to the hive, in almost exact conformity to the consistency of the mountains, and the apparently consequent greater or less amount of sage. As the sages increased in either direction gradually, and the soil changed, so the honey-yield gradually increased. The variation of the honey-flow is usually ascribed to the atmosphere; but in this case there appear to be indications that the soil made the difference. Near Mount Wilson, in the midst of the chaparel district it is told of apiaries yielding 300 to 400 lbs. to the hive. Even if this is true, it was years ago, when there were fewer apiaries, and the present extensive fruit-orchards were covered with sage. What sage remains along the mountains is a comparatively narrow strip, and is of a less thrifty and varying growth than were the valley sages. While the fruit-man is led into the business by the land-speculator pointing to the growth of greasewood, which will thrive upon the desert itself, the would-be bee-man often thinks, the more mountain the more honey.

Downey, Cal., Jan. 20.

[Just as extensive agriculture, such as the substitution of wheat-fields for pasture-lands with its acres of white clover, has made what was once profitable bee-keeping now unprofitable, so the starting of fruit-ranches in California is taking away the sources of honey, and the bee-keeper is obliged to hie away to the mountains. It must be a little comforting to the bee-keeper to know that there are places where the bees may remain undisturbed.—Ed.]

MANUM IN THE APIARY.

A PROPOSED NON-SWARMING SCHEME.

By A. E. Manum.

"You will observe, Mr. Daggett, that this colony is very strong; in fact, I choose strong thrifty colonies for these experiments, in order to test these different methods thoroughly. I am running this colony on what *I* call the 'sandwich' plan. After the queen had filled the combs in the main brood-chamber I placed a half-depth brood-chamber on top, with a perforated zinc between the two; and after shaking a few bees into this upper chamber I placed the queen (that I had previously removed from below) with them; and as soon as the honey-flow came I raised this upper half-story and placed a tier of sections between the two chambers, being particular to raise the zinc also, and placing that over the sections to prevent the queen from going down into the sections to deposit eggs; therefore you will see that the queen is confined to the upper brood-chamber."

"But, Manum, what about the lower brood-chamber? Don't the bees build queen-cells there after the queen is removed?"

"Well, Mr. Daggett, that is what I am testing. I have looked this colony over but once since putting the queen in the garret, and that was when I put on the sections, and I found two queen-cells; but I thought at the time, that probably those cells were started, and had eggs in them when the queen was removed, because they did not look like *forced* cells; and, again, had the bees been determined to raise a queen below to replace the old one, it seems to me that they would have started more than two cells; and after looking them over this time, if no cells are found I shall think this plan worthy of further trial. We shall see."

"Manum, how many days is it since you removed the queen from below?"

"The record here says 12 days; and on the sixth day after her removal I found the two cells I have mentioned, and now it is 6 days since that time. I will now remove this upper brood-chamber, and now the sections. My! they are quite heavy. I will look at them. Yes, they are doing well in them. This section is partially capped; but as I took it out from the center of the clamp it is not to be wondered at. I will take out one from the corner of the clamp (section-case). Well, there! just look at this, Mr. Daggett. If any thing, this section is nearer completion than the one taken from the center. What does this mean? Let us consider this a moment. Ordinarily the bees complete the center sections first, so that I am obliged to 'jump' them by exchanging center ones for those on the outside; but in this case *all* are being filled together. It must be owing to there being brood above and below. I must give this colony another tier of sections before I leave them, and I believe I will put them on the top of this set, inasmuch as the queen is confined above. There is one thing, however, that I don't quite like; and that is, where they have capped the sections the cappings do not look as white as they should. I fear that this will be one trouble with this plan of 'sandwiching.' The bees, in their attempt to get pollen up to the queen-apartment, will soil the sections more or less. We will now examine the combs in the lower chamber. Well, there, Mr. Daggett; the brood is all sealed, and not a queen-cell started. That is encouraging."

"How long, Manum, are you going to keep the queen above before you return her to her old apartment below?"

"It is time now to return her, as it is 12 days since she was removed; consequently there is nothing below from which the bees can start queen-cells; but as I want to test this experiment more thoroughly I will give them a frame of uncapped brood from some other hive. I have to take it from another hive because the frames in this upper story are too shallow, they being only half the depth of the lower ones. There! now with this comb of brood containing eggs, if they do not start queen-cells

I shall think this plan worthy of further and more extensive trial; and if, when I come here next week, I find no queen-cells I shall put the queen below and give them another tier of sections—providing I think it necessary—and I shall feel quite sure there will be no swarming fever in this colony. Well, there, Mr. Daggett, it is nearly one o'clock, and you remember I promised my wife we would be back home by half-past 12 to help pick strawberries, as she said some of her pickers had disappointed her to-day."

On our way home Mr. Daggett asked:

"Manum, do you know any thing about a young man who lives in our county, by the name of Langdon, who has invented a new arrangement to prevent swarming?"

"Yes, I have seen him; in fact, I visited him last winter, where I had a very enjoyable time. I found him to be a live young bee-keeper who is very enthusiastic, as also is his father. When I went there I found them both busily at work in their little factory, where they have all needed machinery for making their own supplies. This machinery is run by steam-power; and when the young man, Mr. H. P. Langdon, showed me his new device for preventing swarming I was not so much surprised, inasmuch as nearly all the machinery in his shop was of his own make, showing that he is a genius and a natural mechanic."

"Then you saw his new device?"

"Oh, yes! he explained it all out to me, as well as his house-apiary. But here we are at home again, and I will tell you all about it some other time, with my experience with something similar to his device."

Bristol, Vt.

EXTRACTED VERSUS COMB HONEY.

REPLY TO E. FRANCE; WILL A COLONY YIELD MORE COMB THAN EXTRACTED?

By R. C. Aikin.

For upward of 15 years I have produced both comb and extracted honey in the same apiary. I used to think my yield of extracted, one third more than of comb. I did get more extracted than of comb; but closer observation finally led me to believe that it was at a sacrifice of winter stores, at least in part.

In Oct. 15th GLEANINGS, page 776, Mr. E. France says: "Well, it just happened that we used up one set of combs more than we counted on in making new colonies, and one hive was left empty of combs. The bees were there. Now, when we came again all the hives were filled with honey—that is, the combs were. The yard averaged 25 lbs. of extracted honey to the colony. That empty hive had to build comb for their honey. They did not have 5 lbs. of combs, all told—honey, bees, and all—making a difference of 5 to 1. It was as good a colony as the average—I think better. How is that, R. C. Aikin?"

Now, friend F., why did you stop there? Your argument is *very* lame. You fell into the same trap that many others have fallen into. I must ask *you* some questions. How much more honey had they in their brood-chamber than the other colonies? How long was it after you robbed them of their combs before you went back again? Also, how much time was lost by them before they could get ready to build comb after being so unceremoniously robbed? You must see that these are pertinent questions. With an abundance of combs on hand in which to store, surely that colony would not be secreting wax so as to go to building comb at once.

This involves to some extent the question of wax secretion—whether voluntary or involuntary. I believe it is voluntary, but that they require time both to start or stop it. We know they will not build comb ahead of their needs.

Four years ago we had a sudden and very rapid flow of honey. We were feeding to keep up brooding, and they would have starved but for the feed given. In four days they had all available comb full, and were at work on foundation. Many colonies used enough old wax in *building new comb* to have held 5 lbs. of honey. They did not get under full headway secreting, for about five or six days at least. I admit that, under such circumstances, we may at times lose some honey; but on the other hand we may lose wax when a sudden stop comes in the flow.

During the season of 1890 I managed 165 colonies in three apiaries—one apiary located at home, two seven miles out and two miles apart. As a whole, the home apiary was run for extracted, and the out for comb honey. The total crop was twelve tons. About the same per colony was yielded in each yard, but the extracted-honey colonies had less in the brood-chamber than the others. A few colonies in the home yard were run for comb—the strongest—and in the out-yards a few of the weakest for extracted. The average yield per colony was 150 lbs. The greatest yield from any one colony was 250 lbs., the least 25 lbs., both comb. Colonies of apparently equal strength showed little difference in yield, whether comb or extracted.

In 1891 all were run for comb, save a few of the weakest colonies. The latter did not give as much surplus per colony as those run for comb, yet, according to the theory of "double," yes, "and more than double," these weak colonies should have at least equaled the average yield of those run for comb, but they did not.

The seasons of 1892 and 1893 showed about the same results as to proportion, but the crop was very light.

Now, friend F., if you have produced both comb and extracted at the same time and place, you must have observed this: That the comb-honey colonies, by all odds, store more honey in their brood-chambers than do the extracted-honey colonies. You get more extracted honey, but leave less in the hives; yet your colonies did not gather so much more. This may not account for *all* the difference; but well nigh all that is unaccounted for lies in the management. It takes about as much more skill to make a real successful comb-honey producer as the *apparent* excess of extracted over comb.

It is easier to produce the extracted, and care for it so as to make a merchantable article, but it costs more for storage room for fixtures and their care, while the product brings about half what comb does per pound. In the matter of putting honey in barrels, let me also give you a bit of experience. I had two white-oak barrels, hand made, that I had used for two or three years. They remained empty, and in a dry place, throughout the summer, until the fall flow, when the hoops were driven as tight as they would bear without bursting (seven and eight hoops to the barrel, and heavy), and were then filled with honey. Soon after filling I shipped them to this State from Iowa. In a few weeks after arriving here the hoops were dropping off and the honey leaking. These were 25-gallon barrels, and one of them I have here to-day, a good barrel after about ten or more years of service. You may be able to *keep* your honey in barrels; but how about it when you ship?

Now, friend F., I want you to take a number of colonies, run one half for comb and the other for extracted, then weigh the total results, both in and out of the brood-chambers, and report the number of pounds gathered by each division. I am perfectly willing to trust to you for the details.

It matters not so much to you and me as to the real right or wrong of this question; but if twice as much extracted can be produced as comb, at the same cost, and the extracted will bring eight cents while the comb brings sixteen, we surely shall make the greater profit out of the extracted, because less skill is required in its production. Because it is so much easier to raise the extracted and still have a merchantable article, I am constantly thinking on the problem of how to arrange my stock so I can handle as much stock in the producing of comb as one man is supposed to be able to care for; then, in addition, have an equal or greater number to run for extracted. The constant care necessary to get a first-class article of comb necessarily makes one limit the amount of stock he runs; but I have not the least doubt that the time is close at hand when we shall be able to manage as successfully two or three hundred colonies for extracted, as 50 to 100 for comb. The control of swarming will enable us to so increase our output of the liquid honey that we can compete with sugars, and be also a great step toward making of it a staple.

Mr. Editor, if any of your readers have been producing both comb and extracted at the same time and place, may we not hear from them—at least in brief statements, giving their opinion as to the actual difference in amount of honey to be obtained?

Loveland, Colo., Jan. 25.

[This is indeed a very practical question as well as quite a mooted one. We are constantly being asked by beginners how much more extracted than of comb can be produced, or which is the more profitable. When the question was discussed several years ago the opinions of some of our best bee-keepers conflicted somewhat; but now larger experience and wider observation on the part of all of us will, we hope, enable us to do the subject more justice. We desire that not only friend France but the other prominent bee-keepers will give their experience.—Ed.]

MARKETING EXTRACTED HONEY.

HOW TO GET A TRADE STARTED WITH THE GROCERS; SOME VALUABLE SUGGESTIONS.

By Chalon Fowls.

As I have succeeded in establishing a good home market for my extracted honey, in my own and adjoining towns, selling 2000 to 3000 lbs. every season, I will give a few hints showing what my methods are.

First, to show that it pays better than to ship to a distant market in the city, I will say that last season's crop brought me 13½ cts. on the average, running from 11 to 14 cts. Now, bear in mind this result was not obtained in a single year; but in the course of a few years a good reputation has been gained for a choice article of honey. Of course, nothing is sold under my labels but choice well-ripened clover and basswood honey, ripened on the hives. If I happen to get any dark or inferior honey it is sold at a less price directly to consumers, explaining the reason of the difference in price. I would not let the grocers have it at any price. I put up my honey for families in 1-quart Mason jars, crocks, or any thing they wish; but for

THE GROCERY TRADE,

it is put up in pint Mason jars or jelly-tumblers. A simple 1x2 inch white label is used, giving my name and the word *honey* the most prominence, as it is my belief that the best "display" can be made with the *honey itself*, which I aim to have "clear as crystal," and put up in flint glass. I make a trip once in five or six weeks with a fresh supply, and call on all the grocers; and any cans unsold, that show signs of candying, are replaced with freshly put-up goods.

I have often had quite a little difficulty in getting grocers to try my honey the first time. I once talked quite a long time with a grocer whom I will call Mr. A. I can remember a part of the "palaver," which ran something like this:

"Your honey looks nice and clear, but it won't stay so."

"But if it candies I'll change with you next time I come around."

"Don't want the nasty sticky stuff around anyhow; leaking and sizzling down the side, and daubing up my shelves."

"But I tell you my honey *won't* sizzle down the side, and I'll prove it if you'll take only a little to try the goods."

"It will be little if any, and that won't pay to bother with."

"But I expect to convince you that my goods are clean to handle, of superior quality, neat, and attractive, and a good seller; and you will soon have a good trade in my honey, which will be profitable."

"Well, I would try half a dozen, but you ask too much."

"None too much when you consider the quality, and that I warrant you against all loss."

After more "palaver" he took half a dozen, and since that has been a regular customer—in fact, he won't buy of any one else, and often handles thirty or forty dollars' worth in a season.

Once, after leaving him a stock of honey, I called on his competitor next door, only to find I could not sell him any, as he had a few cans on hand he had bought of some other party, that were candied.

A month later, when I called on Mr. A. I found the honey had been selling well, and he took some more. Calling next door on Mr. B. I suggested that he would now be ready to take some honey; but he said:

"No. Mr. Fowls, you see I've got this candied stuff yet, and I want to get rid of this first."

"Well, it doesn't seem to sell. You seem to have just about what you had a month ago."

"Well, no; it doesn't sell; it doesn't look nice, and people don't want honey unless it does look nice."

"Perhaps the people don't know what it is. I see it's not labeled."

"Fact! the most of them think it's horseradish."

"Well, I guess you'll have to melt it up, to sell it."

"Haven't got the time. I should be sure to make a muss, get it burned, or something. Let me trade it for some of yours."

"No, I couldn't do that, Mr. B. It's not as good as mine; and if I should sell it again it would hurt my trade."

"Oh! but you could dispose of it somewhere; and I will try your honey, and you will be making money out of me."

"No, sir, Mr. B. When you handle *my* goods you will make a much larger profit than I do. See here; I think I can give you a pointer. Last month when I came around I sold a stock to your neighbor, Mr. A. You would not take any, but said, 'Wait till I dispose of this candied honey first.' Well, since then Mr. A. has made $2.00 clear profit on my honey. If you take my honey, *you* are the one that will be making money. Why haven't you made any thing on honey the last month? You didn't have honey that would sell."

"Ha, ha! I'll give up; bring in a couple of dozen and we'll try it."

I often do quite a little talking to get people to try my honey; but after I get a customer I can usually keep him.

If a man does not buy the first time, I keep coming till he does. If he happens to have a stock of honey bought of some one else, I do not pick a flaw in it; on the contrary, I praise the good points; and if there are any bad ones, the grocer will usually mention them himself on seeing my sample in comparison. I never run down a competitor's goods, even if they are inferior, and "farmers' honey" nearly always is.

I sell quite a little to boarding-houses and families in my own town. I sell small packages of honey the same size the grocers sell, at the same price; but larger quantities I sell cheaper. I called on a mechanic in his shop one day, and, producing my sample, proceeded to strike him for a trade. He at once refused, saying something to this effect:

"No, I never use it; have not bought any for years."

"But your family—wouldn't they like it?"

"Oh! they might, likely enough; but we can't afford it; and as long as they are satisfied with the cheap sugar syrup, I can't afford honey."

"Well, Mr. H., I'll admit honey can't compete with sugar, simply for sweetening purposes; but it's the *flavor* I want to sell you; and I think I could convince you that honey is as cheap as sugar when you take that into consideration."

"Well, you'll have a hard time convincing me."

"I think I heard you speak of buckwheat flour being high. I suppose you have buckwheat cakes at your house these mornings?"

"Yes, sir; there's nothing equal to buckwheat cakes, made the old-fashioned way with yeast."

"And you like the *flavor* of those cakes so well that you pay nearly three times the price of wheat flour to get them!"

"Well, I'll acknowledge the corn, Mr. Fowls; but if I'm extravagant with my cakes I ought to be careful what I put on them."

"So I suppose you put on granulated-sugar syrup."

"Yes; and the children want them just swimming in it too; but it's cheap."

"Mr. H., let me suggest that it would cost no more to put just a little of this fine-flavored honey around on top of them than it would to have it just swimming in sugar syrup."

"Well, you call at my house when you come around with the honey, and we'll try it."

Of course, I sold him some, and he ordered some more in two or three weeks, making 24 lbs. so far. When I asked him if he had tried it yet himself he said, "Why, I have eaten more of that honey than I have eaten before in all my life. It is thicker, finer flavored, and agrees with me better than the old strained honey I tried years ago."

Some of my customers who keep boarders say it is the cheapest thing they can get for sauce. It needs no preparation, will go farther, and is relished as well as any thing.

As compared with maple syrup, a person can usually take only a little honey on a spoon, but will take a whole spoonful of maple, it is so much thinner.

Oberlin, O., Jan. 24.

RAMBLE 102.

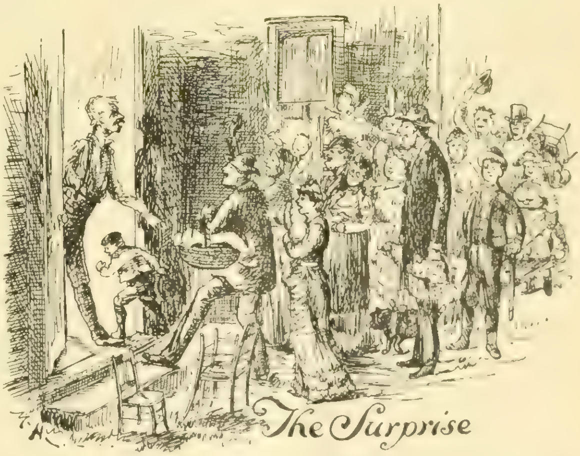
SURPRISE PARTY; PULLED BEES; HOW THE RAMBLER AND MR. MOFFAT CAUGHT THE BEE-THIEVES, ETC.

The cabin in which the Rambler now resides in happy single blessedness is large enough for me to spread myself in, and have one spare room besides. It takes three good rooms in which to do the spreading. I find fully as much company here as in the little cabin where I had rattlesnakes and skunks under my bed. The basement of my house is occupied by two cats. The husband cat is, however, absent much of the time. Having, I suppose, set him an example for rambling, he is trying to outdo my best efforts. The wife cat, however, is very contented, and placidly eats my pancakes if I spread them well with 35-cent butter. The attic of my house is also occupied by a family of woodpeckers. They are so much in the habit of pecking around for a living, that, even in the dead of night, their pecking machinery gets to going, and at first it was exceedingly annoying to hear a loud rap, rap, rap, and, upon going to the door, to look out into blank darkness. Knock, knock, knock, again, suggestive of spirits. Wonder whose spirit it is. Then Poe's Raven comes to mind: "Who's that knocking, knocking at my chamber door?" Then the knock, knock, knock, is repeated, and I locate it in the attic, and among my harmless feathered tenants.

A few evenings after locating in this four-roomed house I was having a fine outlook upon the world through one of our San Francisco papers, when another knock, knock, knock, came. This time it sounded so natural that I laid off my specs and went to the door, and there stood the smiling visage of my nearest neighbor. He sort o' unceremoniously brushed right by me and entered the house, and then another neighbor did the same, and then another; then the women began to swarm in, and I retreated to the further corner of my study; but the neighbors kept coming, and then babies in arms. I almost fainted, and gasped, "Gracious! what next is coming?" Well, it was chairs, tables, and oysters, and then I began to realize that I had been struck by a surprise party. I never had the least objection to being surprised; but in this case, instead of being gradually surprised, the good people all came at once. It was rather overwhelming; didn't know where to put my hands and feet. I gradually *came tu*, as the Yankee said, and told the women to dump the babies on the bed and I'd go out under a pepper-tree and change my wearing apparel. They followed my advice, and the bed was a sight to behold. I got out into the glorious California air, and made for the pepper-tree with my Sunday go-to-meeting clothes under my arm. The cold stars looked down upon me with unpitying rays.

All of my festive young friends, and especially Mr. and Mrs. Clark, took right hold with both hands, so to speak, for enjoyment; and as these good friends were responsible for the surprise, I expected something would soon happen to them, and, sure enough, it was only a few days after that when both were down with la grippe.

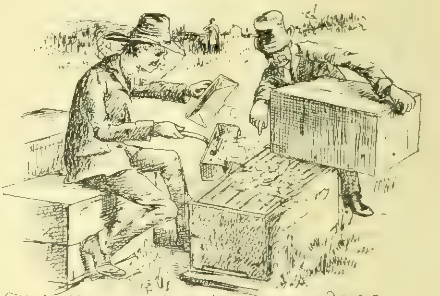
The surprise was brought to a close at a timely hour, and all the friends happily went to their various homes. The babies, sleeping peacefully on my humble bed, were rolled in blankets and tenderly conveyed away also. When the last one had disappeared I entered my cabin again, and, after a few reflections upon past times in the far East, I was soon enjoying myself in the land of dreams.


The Surprise

Soon after the occurrences above noted I visited our apiary again to give it a thorough looking-over, for it had been a long time that I had been absent from it, and at such times there are apt to be some colonies that become queenless; others will have fertile workers, and others may have been tampered with by skunks, and bipeds that are worse than skunks. So, upon my approach to the apiary, I heard a note that made me hasten my steps; and, sure enough, there was robbing in progress, and several hives were being assaulted. It is the practice here to close the entrances, after the extracting season is past, down to about an inch; and knowing that these were strong colonies only a few weeks before, I was a little surprised to see the vortex of bees whirling around them. Without waiting for veil or smoker I grasped the sharp-edged steel tool that we use to pry open the supers; and the first one that I tipped back I found had been cleaned of its brood-combs, bees and all; and though there was no one within a mile of me I shouted right out, "Pulled bees!" and an examination revealed that 12 colonies had been stolen. The frames from the brood-chambers, with adhering bees, had been removed (pulled), and placed in hives owned by the puller; and a person entering the apiary would miss no hives from their accustomed place.

"Well," said I to myself, "this puller beats the puller of honey;" but I soon changed my mind in that respect; for, when I unlocked and entered the cabin, I found eleven 60-lb. cans of honey missing, and about 20 lbs. of beeswax. All manner of schemes for the entrapment of the thieves were entertained, and finally I resolved to watch nights, or to let the thieves go on in the evil way they had been doing; and by thus giving them rope enough they would hang themselves; and, sure enough, a few evenings after, there came a knock, knock, knock, at my lonely cabin door. It was not the woodpecker in the attic this time, but at the door I found Mr. Moffat, of the neighboring town of Rialto, and a tall lank man. The Rambler, it has been said, is a lank fellow; but this man was extremely lank—much lanker than the Rambler, and he was introduced to me as the chief detective of Rialto.

Mr. Moffat and I compared notes on the pulling business, and we found ourselves in the same boat, Mr. Moffat having lost over twelve colonies also. But Mr. Moffat had the good fortune to visit his apiary the next morning after the pulling, when tracks were fresh, and tracked the wagon to an apiary away out in that brush in which I rambled a few weeks ago. The result was the arrest of several parties, and the Rambler was called upon to go over the ground with Mr. M. and the chief detective, and note points of interest that would be of value in court. The next morning I was in Rialto, bright and early, and with my companion we visited the despoiled apiary. Pony Vix, who is so used to the artistic arrangement of my apiary, pointed her ears with some surprise at the medley of old rattle-trap hives before her. Mr. M. said that he used to take much pride in his bee-hives and grounds; "but," said he, "since I came to California, and where I have so much ranch work to do, I neglect the bees; and all I care for them is to extract the honey when it is time to do it. Oh, yes!" said he, in reply to my question; "it pays to have things fixed nice; but I have much else to do." As a consequence, here were some 140 colonies in old unpainted hives, and scarcely a super that fitted close enough to keep the bees in at those points of contact. The hives, being unpainted, were warped so that bees could come out at the corners. Still, Mr. M. had taken eight tons of honey from this apiary. I reflected that, if his fruit-orchard had been neglected as he had neglected the bees, he would have received no revenue from it whatever; but the bees will stand much neglect, and still produce a crop for the owner. I found myself wishing that some one would invent a bee, or change all of our bees to non-neglectable bees, and then see how many would remain in the business.


"Mr. Moffat worked his Stew-Pan Smoker, While I worked the hives."

Mr. Moffat doesn't believe in any of the newfangled smokers, but prefers to use a sort of stew-pan arrangement—a tin box about 5x8, and 6 inches deep, with a loose cover and a long handle. A fire is built in this stew-pan, and any kind of fuel crammed in. It makes a beautiful smoke. If the fire gets too hot, the cover is put on. If the smoke is to be directed over the hive, take the cover in one hand, the stew-pan in the other, and fan the smoke toward the hive with the old flippity-flop cover. I became so interested over this (to me) new smoker that I forgot all about pulled bees or the pullers thereof.

Our examination revealed that the same tactics had been practiced here as in my apiary—the brood-chamber rifled, and the hive left on the stand. Here, however, five colonies had been removed bodily, and we all came to the conclusion that the men in the brush began to think they owned all of the lone apiaries, and were going to remove them to their respective homes. While we were examining hives, the detective was measuring tracks, both of man, beast, and wagon, and picking up pieces of slivers here and there; and one of these that came from, or that was broken from the top of a brood-frame was carefully wrapped in a rag, and put into the pocket. Mr. M. also called my attention to the way he had put in foundation. A strip of redwood was split from a shake, and the foundation secured by nailing the strip on with shingle nails, the nail-heads standing down a full half-inch. Another point, the frames were old, and many of them had been boiled to remove the foul-brood germs. After a thorough examination in the pulled apiary we drove three or four miles to the pullers' apiary. The puller was gone to hunt up a lawyer, but the women-folks were at home, and came out a little way into the brush to see that we three did not take their bees all away. The owner of this apiary said, only a few weeks before, that he had 30 colonies. We now counted 78; and, considering that our winter has been a little colder than usual, it was a remarkable winter increase. We looked into every hive, and—yes, Mr. Moffat's big shingle nails were there; those boiled frames were there, and those frames with slivers broken out of the top, were there. Mr. Moffat worked the stew-pan smoker, and I manipulated the hives, and the detective held on to his precious slivers, and soon we found a frame whereon the larger sliver or shaving fitted exactly. That frame was removed forthwith for testimony. Besides looking the apiary over for the benefit of Mr. Moffat, I had another object; and that was, to find something that had been pulled from the apiary that I had been managing. After many hives had been looked into I found a frame that I could identify. A little further along I found another. While all the apiaries around this vicinity have about the same size and style of frame, and they are interchangeable from one hive and from one apiary to another, it is impossible to distinguish one frame from another, ten miles away. It was for that reason that the pullers pulled only the frames and brood. But in pulling from the Rambler's apiary there was one style of frame that had an improvement attached to it in the shape of a little inset on the end, and the nailing-together of the frame was such that it could be identified among thousands. Here was, then, the rope that the pullers hung themselves with—the saving of the frames. In handling frames for extracting, there are many little faults on frames that one becomes accustomed to, and so it was here; aside from the two peculiar frames, there were others that I knew came from my apiary. When we departed, the sad-eyed women-folks returned to the little cabin, and we were sure their hands would not have been put forth to steal other people's possessions. The guilty parties, at this writing, are in the hands of the law, and the result will be reported later.

I wish to say to the readers of GLEANINGS who may have read my answer to Mr. Pryal, in relation to matters concerning Southern California, in last GLEANINGS, that I wished to convey no idea that Mr. Pryal had any malice toward this portion of the State, or that he in any way perverted the facts. We have a great State, and even a native Californian, though he may be well posted, and travel much, will find there are things that he may be a little mistaken about, and commit an error in writing about it. That is all that I wished to convey in my answer to the gentleman. RAMBLER.

THE SELF-HIVER, AGAIN.

SOME OF THE DIFFICULTIES; HOW THEY HAVE BEEN OVERCOME.

By C. H. Dibbern.

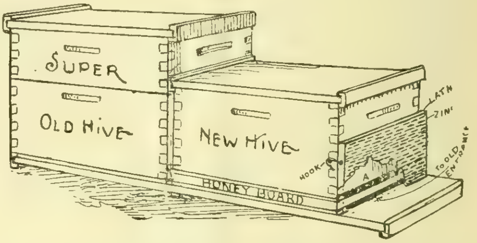
I have been carefully watching the bee-papers during the last few months for something further on this subject, but so far a strange quietude seems to have settled over the entire matter. It is hardly possible that the matter has been dropped as impracticable, or that nothing new has been learned in the past season. I know that some of our best bee-keepers are somewhat skeptical when a self-hiver is mentioned, and I am not certain that the perfect hiver has yet been invented. I do know, however, that enough progress has been made during the last few years to make its perfection, in the near future, an absolute certainty. When a self-hiver was first suggested I was greatly interested, as I was then thinking of starting an out-apiary; and how to manage swarming without costing all the bees were worth was the great problem with me.

During my first season at the out-apiary my swarmers were constructed somewhat on the principle of the drone-trap, and proved partially successful. There was no trouble in catching the queens in the new hives, with a lot of drones and some workers. I could usually, too, determine at a glance just which hives had swarmed, and by then dividing the bees and combs, and changing position of hives, could make fairly good swarms. While this was not very satisfactory, it was better than to allow the new swarms to escape to the woods, or hire help that cost more than the bees were worth. I have changed and remodeled the hiver many times since, and have been constantly watching for any suggestion that the action of the bees might give me. I have also tested about all the different hivers that have appeared in the bee-journals from time to time, that gave any promise of success.

Last year the Pratt was very generally considered as solving the hiving problem; and so favorably impressed was I, that I tried quite a number; but I must say it was with very poor results. As I consider Mr. Pratt one of my good friends who is working on the same lines that I am, for the benefit of bee-keeping, I do not wish to say any thing further against his hiver; but judging from my numerous experiments during four years, I do not see how he can ever make his plan a success.

I will now mention some of the difficulties that I have encountered, and that must be overcome in the perfect hiver of the future. In the first place, the drones are very much in the way; and the only way to dispose of them is to trap them in some way. Where drones are confined in the empty hive with a considerable number of workers, they are fed by the bees at swarming time, and do not die as in a trap. Then every afternoon they make a great fuss to get out, and keep the bees in a constant uproar, and it is needless to say but little work will go on in the old hive. Some bee-keepers seem to have lots of trouble on account of the queens passing through the excluding zinc; but I have had almost none at all, and use only the common sort, as sent out from the Root factory. There is a great difference, however, how the excluders are placed on the hive. If placed on the Pratt principle, with only ¼ in. between the top of frames and the zinc, the queens seem to stand on the frames with their hind legs, and push themselves through. In this way I lost several good swarms last year, before I could understand how queens could pass the zinc in that position, when they could not pass it in the ordinary drone-trap. Perhaps this may explain why so many have trouble with the excluder zinc. I have a very few small virgin queens pass the zinc, but that is about all. One point on which bee-keepers have expressed a great deal of fear, and which at first troubled me greatly, was the idea that two or more swarms, coming out about the same time, would double up, and all return to one hive; or, perchance, should some puny virgin queen get out, the whole business would go to the woods. Happily this fear has proved entirely groundless, and during four years' experience I have had almost no trouble at all. I well remember the trouble I used to have "in the good old times" when I allowed the bees to swarm at will, when perhaps the first swarm would go to the highest limb in the vicinity, and, before it could be secured, perhaps two or three more would swarm. and, of course, form one bunch, often as big as a barrel. Now, it may be just fun for some to hive and separate such swarms, but I want no more of it in mine.

The most practical form of the self hiver that I know of is that described by me in Gleanings for Oct. 15, 1892. It consists in placing the empty hive in front of the one expected to swarm. My hives are loose bottoms, and strips are nailed on the sides and rear of bottom to make a bee-space under the frames. I remove the rear strip on the bottom for the empty hive, and connect the entrance of the swarming hive with this bottom by means of a bridge made of tin or wood, so the bees must pass out over this bottom. Place a wood-zinc honey-board on it, and the empty hive on that, leaving a bee-space between the bottom and honey-board, for the bees to work through. The hiver is hooked on in front of this entrance, and the bees pass through the two lower rows of zinc. Above the two lower rows in the zinc is a wooden division, with wire-tube escapes for queens and drones to pass up to the front of the empty hive. The back of the device above the division also contains excluder zinc, with a part with perforations large enough to allow the queen to pass into the new hive, but retaining the drones in the trap. I think it best to get rid of all surplus drones as soon as possible.



Now, when the bees swarm out, the queen and drones will be surely trapped in the upper part of the device; and, if I am present, I simply put a square strip securely against the hiver, shutting off the direct entrance to the old hive, and compel all the returning bees to go into the new hive with the queen. Thus I get a good working swarm in the new hive. Should I be absent, the bees will cluster on the device, where the queen is, and more or less take possession of the new hive. I can usually determine what hives have swarmed by the large number of drones in the trap, and I have then only to cut off the direct entrance to the old hive, with that square stick, which will throw all the workers into the new hive. If it is desired to boom the new swarm, they can be left any time as they are, up to nearly two weeks, when the old hive must be removed to a new place. Of course, the surplus cases should be changed to the new hive at swarming time, or when discovered.

The advantages of my system are many, and must be apparent to all intelligent bee-keepers. In the first place, the bees in their ordinary work pass through but one perforation, in plain sight, and are not liable to become clogged with drones. Swarming can be easily determined by lifting covers, not hives, supers, and all. Drones are trapped where they will die, and can be readily shaken out through a hole at end of the device. The empty hive should be filled with worker foundation; for if many combs are used, the bees seem a little "previous" in taking possession, and store honey there. If only guides are given, the bees often commence to build drone comb in warm weather. All communication is not cut off from the old hive, as the bees have simply to pass up through the honey-board and out. In fact, a good many bees continue to work in the old hive; and when it is finally removed, all are thrown into the new hive, without any of the Heddon bother. Bees on this plan swarm but little, and it comes nearer being a non-swarmer than the Langdon plan, in my experience.

I have no patent on this device, and, so far as I am concerned, all are free to use it. So confident am I that it is the best plan yet suggested, that I shall adopt it quite generally. Some have objected that an empty hive is required for every hive expected to swarm. Now, the prudent bee-keeper, it seems to me, would always have such hives provided, anyhow; besides, most of us, of late years, have more empty hives than we know what to do with.

Many have ridiculed the self-hiver, but it is a ghost that will not down at the bidding. The advantages of such a device, to the person keeping but few bees, and who is away from home at work all day, must be apparent. Then, too, if children or the ladies are left to look out for swarms, how easy it will be just to put that stick in front of the entrance, and the thing is done! But if no one sees the swarm at all, it will be hived just as certainly, and in almost as good condition.

Milan, Ill., Feb., 1894.

[We reproduce the engraving which appeared on page 765 of GLEANINGS for 1892, in order to give a clearer understanding of the hiver. We may add, that the honey-board separates the two entrances—the one to the old colony, and the other to the empty hive in front, to be occupied by the swarm. The two entrances are likewise separated by a slat, or low ceiling, just opposite the honey-board. The queen, on coming out with the swarm, and failing to go through the perforated zinc, will pass through holes in the slat covered by wire-cloth cones, *a la* Alley. The slat and the cover are not shown in the engraving, but should be represented between the two entrances back of the perforated zinc in front.

Regarding the merits of the Pratt and Dibbern, we would say, that, where there are a large number of drones, the Dibbern will doubtless give better satisfaction. But where all worker-brood foundation is used, as it is in most well-regulated apiaries, there will be so few drones that there will be no appreciable trouble from them. The Pratt worked nicely for us; and as it seems to us to be much simpler in construction and manipulation, we should prefer it, especially in its modified form. Pratt originally had his hiver constructed, one hive in front of the other; but as this necessitated the use of two bottom-boards, the mutilation of one of them, a "bridge" to connect the two hives, and a perfectly level plot of ground (a condition that does not always exist), he adopted the form of one hive over the other. Dibbern's hiver could be constructed on the tiered-up plan as easily as Pratt's, and we would suggest that friend Dibbern try a few that way.

We want to say amen to his last paragraph. —ED.]

CALIFORNIA STATE BEE-KEEPERS' ASSOCIATION.

By J. H. Martin.

Quite a number of bee-keepers were seen concentrating toward the Chamber of Commerce, in Los Angeles, Jan. 23d, and King-bee J. F. McIntyre rapped the meeting to order at 10 A. M.

The usual routine of business was attended to, and the regular program was taken up. Mr. Francis W. Blackford, of Saugus, presented a paper entitled, "Is the Honey-bee in California the Fruit-producer's Enemy?" Mr. Cory then presented a paper bearing upon the kindred subject of bees and fruit-drying. During the discussion which followed it was suggested that the fruit-trays be covered with cloth; but inasmuch as, in the drying of fruit in large quantities, the spread is several acres, it was figured that an acre would tax the fruit-dryer to the amount of $121 per acre for cloth. It was considered as an expensive measure, and the subject was dropped without a suitable remedy being found.

AFTERNOON SESSION.

The various restaurants around the Chamber were well patronized; and, from the happy remarks that fell from the various representatives, they were well taken care of by the caterers to the needs of the inner man.

President McIntyre read his annual address, and touched upon various points of vital interest to the bee-keepers of the State. These points were afterward acted upon by the various committees.

Mr. Cory, in a brief paper, considered tare on honey cases and cans. It was the sense of the committee that tare should be allowed only on the case. More tare was exacted than the weight of can and case allowed. Mr. Mendleson claimed that he lost 1438 lbs. on his honey crop by this unjust tare.

Mr. Brodbeck very happily called his paper a "Medley," and touched upon several subjects.

The Ventura hive came in for a share of discussion. This hive has been the standard hive for Ventura Co. for several years, and the bee-keepers of that county would like to make it the standard for California. Seventeen, mostly Ventura Co. men, voted that way; and as there was no opposing vote, although there were over 50 persons present, we have no doubt Ventura has set the pattern, and made it a standard for the State; size of frame, top-bar, 19½; bottoms, 17½; end-bar, 8½.

After the standard hive was adopted, Mr. Mercer, a Ventura man, kicked over the traces, so to speak, and advocated a shallow divisible brood-chamber. Mr. Woodbury came up smiling, as the pugilists say, and supported him; and Mr. Rowley spoke right out in meeting in favor of the Heddon hive. The secretary dittoed the gentlemen, and was followed by Mr. Compton, who had been a foreman in Mr. Heddon's apiaries. He strongly advocated the divisible brood-chamber. Mr. Corey, however, preferred the good old way of handling frames and dummies, and the discussion branched off into a question-box, which brought out many valuable hints.

EVENING SESSION.

The evening session was opened by Mrs. Moffat singing "Simple Little Ostrich, I Know it All." The theme did not apply to bee-keepers present, for, of course, the "know-it-alls" do not attend conventions. Mrs. Moffat rendered other songs during the evening, which were heartily applauded. Prof. Cook made everybody happy by his appearance, and, after a few happy remarks, read an address upon the bee-keeping industry of California. Prof. Cook is thoroughly established in the college at Claremont, and will take a lively interest in the promotion of the bee-keeping industry of the State. He will probably establish an experiment station at Claremont, and the association passed resolutions to further that end.

The adulteration phase was taken up and handled without gloves, and a resolution was passed directing the expelling of any member of the association found adulterating honey.

There was some forecasting in relation to the honey-yield for the coming year. The yield depends upon the rainfall; and the more rain up to May, the better will be the yield. Several averages were given for a series of years, wherein it was found that about every other year is a failure in some portions of the State. Giving 100 lbs. per colony was considered a poor season, while 400 lbs. was called best.

SECOND DAY.

The morning was taken up with reports of the various committees. The most vital point in these reports was in relation to marketing of our product. A committee was appointed to correspond with the California Fruit Exchange, with a view to having representation in the organization. It was further recommended that the producers put their honey in small cans that it may reach the consumer in the original package. Put up in 5 and 10 lb. cans, the honey would not be adulterated so much.

Mr. G. B. Woodbury presented a valuable paper, "The Fruit Nemesis; or, What shall we Do to be Saved?" A special vote of thanks was given to Mr. W., and he was appointed a committee of one to select points from his paper in relation to the value of the honey-bee in its office of pollenizing fruit-trees, and to have the same published for general distribution.

How can bee-keepers best advance their interests? was then treated by W. P. Richardson. Prof. Woodworth, of the State University, explained a hive of his own devising. The main principle was the use of 4¼ x 4¼ sections, not only for obtaining surplus honey, but the same sections were used for brood-frames. The idea may be a good one; but the practical men present did not enthuse much over the new idea.

Prof. W. stated that the State Chemist, Prof. Rising, was ready to aid bee-keepers in the way of chemical analysis.

The election of officers resulted as follows:

Prof. A. J. Cook, President; J. H. Martin, Sec.; J. F. McIntyre, Treasurer. Several vice-presidents, etc., followed.

The final paper, by Mr. Touchton, "Twenty-three years Among the Bees," was read, and the association soon after adjourned, making provision for a special meeting at the midwinter fair in San Francisco, at such time as the Executive Committee shall designate.

J. H. MARTIN, Sec. J. F. MCINTYRE, Pres.

TRADE NOTES
BY EARNEST R. ROOT.

INVENTIONS.

WHO SHOULD HAVE PRIORITY, AND THE RIGHT TO USE? KEEPING TWO QUEENS IN A HIVE TO PREVENT SWARMING.

By B. Taylor.

Friend Root:—In GLEANINGS for Nov. 15, and in the same for Dec. 15, are several articles on "Two Queens in One Hive." One of your correspondents seems to be greatly disturbed by the thought of my getting a patent on two queens in a hive. I wish to say here that I do not believe in the present patent system as a just and wise method of rewarding inventors for useful improvements in needed inventions. I do not believe that any one person ever made an entirely *new invention* in any thing. A little thought on the subject will convince any rational mind that the perfection of machinery enjoyed in the present age is a thing of slow growth rather than sudden creation. Each inventor receives his inspiration and starting-point from something that others have done before him; and I am quite sure that every inventor, if he will examine himself and his inventions, will find that something already done started him in the search for improvement. We talk of McCormick inventing the reaper, Howe the sewing-machine, Morse the telegraph; but informed persons know that all these machines had been brought nearly to practical perfection before any of these truly great inventors were born. Yes, sir; every instrument that was ever invented to harvest a sheaf of grain, was a part of the work in making the self-binding reaper. Useful inventions, then, are a part of the growth and experience of the race, and no one man should be permitted to seize any thing that was made possible only by the work of past generations, and tax the coming generations for their use. In the coöperative commonwealth that I am more interested in than in any other one earthly question, inventors will be paid for their work from the public treasury, and all inventions will be free to the people; but until the better time comes, we must use such laws as we have or nothing; and those who use them so as to get some reward for their time in experimenting should not be blamed for so doing. Now to the question of

TWO QUEENS IN A HIVE.

Early in the '80's I commenced experiments to control increase. The first move was to make a large number of stands, large enough to hold two hives. In the spring I placed one hive on each of those stands. When the bees swarmed they were hived in one of my small hives placed where the old colony stood. The old colony was moved to the other end of the stand, with its entrance turned in the opposite direction. This gave all the flying bees to the swarm, and made them strong for gathering surplus. The old hive was given a young queen, and would in nearly every case be strong and heavy by the end of the white-honey season. At the end of this the queen was removed from the swarm, and the two hives were set together again as one colony. This plan worked well, and I extended my experiments until it culminated in the revolving stand, eight years after. The revolving stand revealed the fact (new at least to me) that two queens could be kept in one colony, and I at once saw, as I thought, the possibility of using it as a means to prevent swarming, and at once began work in that direction. And now, friend Root, I will say here before going further, that, until I had demonstrated that this could be done (that is, two queens be worked in a single colony), I never heard, either by print or speech, a single suggestion of the possibility of doing this thing. I know that there had been accounts of two queens being found temporarily in the same colony under accidental circumstances; but that two queens could be *worked there permanently*, and at the will of the apiarist, was a thing that I had never even heard mentioned, and I think I may be excused for claiming priority.

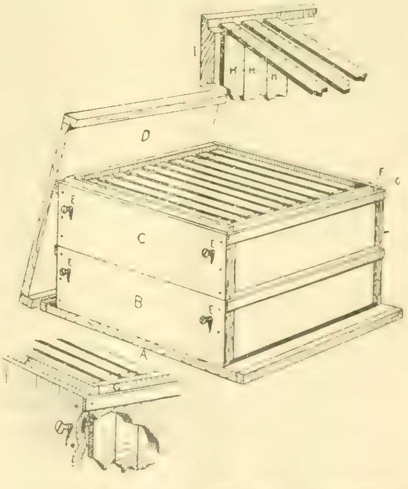
The Wells plan, as mentioned by Mr. Corneil, seems to be nearer my method than any thing else I have seen yet. It is quite different, and was never intended to regulate swarming. I know from my own experience that a division-board of perforated zinc, as used by Mr. Corneil, would not do. His account of his experiments is a plain straight story; but it in nowise covers my plan. His advice, not to spend much money in this direction at present, is entirely in harmony with my own, for you will remember that I said, long ago, that I should not offer any thing for sale or experiment until I was sure I had something useful to offer.

[Mr. Taylor is quite correct. We are mutually indebted to each other, and it is a sad comment on our U. S. patent system that some inventors, having made a slight improvement on an old idea or a set of ideas have been able to get a patent, covering not only the improvement but the old ideas in connection with it. We do not wish to say that it is generally done, but it has been done under important patents recently expired. Neither do we wish to be construed as saying that we denounce our patent laws; but we do agree most heartily with Mr. Taylor in thinking that no one man should be *allowed* to gobble up in a patent the fruits of others' brains.

Along with the above article came a private letter calling attention to a hive Mr. Taylor had sent. That you may all see what the hive is like, we take pleasure in showing you cuts of it.—Ed.]

TAYLOR'S SECTIONAL BROOD-CHAMBER.

I shipped you yesterday, from Spring Valley, one of my shallow-brood-chamber hives. The hive sent was one of a lot made for my own use, about 1882, and is the precise kind I have and still use. If you will set each section on a separate bottom you will see the reason for the beveled rabbeted sides; viz., to always maintain a bee-space, whether of a single piece or two or more of them together, both on top and bottom, as well as between each section.



I still think this hive has as few loose parts, and is equal or superior to any other hive yet brought to notice. B. Taylor.

Forestville, Minn., Jan. 4.

[For a fuller description of this hive, see

GLEANINGS, May 1, 1890, page 324. This is practically the same hive he made as far back as 1863. These were shallow, and had originally, if we are correct, closed-end frames. In 1866 he had the sides beveled as at F, not to keep out wind and rain, but to give the proper bee-space, whether tiered up or sitting between the bottom-board and cover. The dimensions are $7\frac{1}{8}$ inches deep, 16 inches square. The frames are Hoffman in style, $6\frac{1}{4}$ inches deep and $13\frac{1}{2}$ inches long, and have a bee-space back of the end-bars. These supers, with the exception of the bevels, the thumb-screws, and the square shape, are quite like our dovetailed supers with Hoffman frames for extracting.—ED.]

FIXED DISTANCES.

SOME TELLING ARGUMENTS IN FAVOR OF THEM.

By Dr. C. C. Miller.

On page 55, Mr. Editor, you have allowed Jno. G. Corey to make a personal attack on me, and I hereby challenge the said Jno. G. Corey to mortal combat. Distance, three paces; weapons, smokers. Tobacco as fuel barred out. I to stand back to the wind. Now, Bro. Corey, I'd do a good deal to accommodate you, but I must draw the line at continuing to use loose hanging frames indefinitely. You seem to think that, if I had frames made by a good carpenter or mill man, and put together like yours, I'd be all right.

Well, I'll tell you about my frames. The first lot of those now in use were made by Vandervort, the foundation-mill man, and the rest by the G. B. Lewis Co.; and if you think either of them can't "hold down a job," I'd like to see you trot out the "wild and woolly West" man that can beat them. As to putting them together, I may quote your own words, and say, "With the clamps we use to hold our frame material while being nailed, and with 8 nails in each frame, they pile up as true as dressed lumber, and are a correct mechanical job in every sense." Yes, sir, the stuff was cut out by the most expert workmen, then nailed while held with an unyielding grip in a clamp, every frame a model. But the trouble is, they don't stay so. Do yours? Or have you tight bottoms, and never had a chance to look at a lot of bottom-bars after being in the hive ten or twenty years?

As to the why of frames hanging out of true. I must confess that, according to any reasoning in advance, I should not expect as much variation as the facts show. The editor suggests little lumps of propolis under the bearing surface of the top-bars. There may be something in that; but it can be replied that, through the summer, at the time the frames are handled, propolis is soft enough for any little lumps to be squeezed out from under the bearing surface of top-bars. I am inclined to credit most of the being out of true to the warping and twisting of top-bars or end-bars. There is very little wood that will remain permanently true when left without constraint, especially when, as the editor hints, it is subjected to the moisture of the hive, that moisture not acting uniformly upon all parts. The twisting of stuff shows very plainly in flat hive-covers. Made of clear pine 14 inches wide, it is a rare thing to find one attain any degree of age without being twisted to some extent. If a top-bar 1 inch wide in a Langstroth frame twists $\frac{1}{32}$ of an inch out of true, unless I mistake in figuring, the bottom-bar will be thrown more than a quarter of an inch out of true, and $\frac{1}{16}$ variation in top-bar will make $\frac{1}{2}$ inch in bottom-bar. If an end-bar be cut so that the wood of one side be nearer the heart than the other, the two sides will not act alike in aging, thus throwing the bottom-bar to one side. Occasionally it may happen that top-bar and end-bar will combine to operate in the same direction, and then the difficulty is aggravated. If one bottom-bar is thrown to one side, and its next neighbor to the other, then the trouble will be multiplied, resulting in a distance between the bottom-bars all the way from an inch down to their touching together, and being glued by the bees through a fourth of their length.

But now let us admit that frames are all made true, and that in your delightful climate they remain true for a lifetime. Have the top of the hive stenciled, as you say, showing a black mark for each space. That black mark will help at least this much, that, when you have put in all your frames, you will not find the last one a quarter of an inch out of the way. Indeed, by being careful there need be no *great* variation anywhere. But right there's the rub. That being careful takes too much time. Admit that you can put a top-bar right at your stenciled mark in as short a time as I can push a shouldered frame to its place, and it will then take you twice as long, for you must look at the stencil to use it, and you can't look at both ends of your hive at the same time, unless you have a terrific squint in your eyes. But having two hands, I *can* push at both ends at the same time.

But it can not be truthfully admitted that you can put one end in the right place as rapidly as I can. I mean you with the loose frame and I with the other. It takes *time* to place the frame within a thirty-second of an inch of the right place, and still more time to put it just exactly with the stencil-mark. And remember that a very little variation counts when we are trying to space against brace-combs. If $\frac{1}{4}$ inch is the right space between top-bars, push the first frame $\frac{1}{32}$ of an inch toward the second, and the second $\frac{1}{32}$ toward the first, and you may rely on the bees to fill the space with bee-glue.

Let us, however, look at what will actually occur sometimes. All the frames have been moved, and all are to be put back exactly in their right places. If there are eight frames, you have just 16 operations to perform. You must look at each end of each top-bar, and set it to its place, and you can't do it with a jerk either. I can push the whole business up at one operation, and I've no need to be careful either, for I can't push a frame beyond its right place.

As you say, when you want to have your frames at fixed distances, ready for moving, you can put in spacing-sticks in a short time. But however short that time, in just that much less time can one be got ready that has the shouldered end-bars, for they're always ready.

So, as it now looks to me, no matter how the frames are made, I still need the fixed distances, and I don't see how I can follow the advice in your "finally" to have my frames made better than heretofore, for I don't believe the thing can be "did."

But that last sentence of yours hurts my feelings, where you talk about my "new-departure hive." Why, bless you, I'm not trying to make any new departure—just trying to get the best of the old. About the only change I have asked in the Dovetail is to go back to the old form of the frame, both as to top-bar and end-bar.

I'll make friends with you, however, and join with you in pitching into the editor for putting that heading to your article, "Exact Spacing not Necessary." He ought to know very well that you didn't hint at any thing of the kind, but only claimed that you could have exact spacing with the old loose hanging frame. I give up that I can't.

Marengo, Ill.

[We meant that Mr. Corey considered "exact spacing unnecessary" by mechanical devices forming part and parcel of the frames themselves.—Ed.]

A GOOD POINT IN FAVOR OF WIDER TOP-BARS.

Seeing a call in Gleanings for reports on this subject, I will give you my experience. Two years ago I left an order at one of our hive-making establishments for 3000 frames of the modified Hoffman type, with 1$\frac{1}{32}$-in. top-bars; but through some mistake the top-bars were cut 1⅛ wide. We cut 2000 down to 1$\frac{1}{32}$, the remainder we nailed up and used as they were cut by the manufacturer—namely, 1⅛ wide by ½ in. thick. I find on those that are 1$\frac{1}{32}$ in. wide, plenty of burr and brace combs, while on those that are 1⅛ in. wide I find but very few burr or brace combs. Now, give me a top-bar 1⅛ in. wide by ⅞ in. thick, spaced 1⅜ from center to center, with ¼ in. between tops of frames and sections, and I will show you hives without burr or brace combs. T. R. Canady.

Fallbrook, Cal., Dec. 25.

[The result of this experiment is quite interesting, inasmuch as it is quite accidental, and quite contrary to what friend Canady *expected*. Now we should like to ask, Would it be desirable to have wider tops, but thinner than we now make them?—Ed.]

Heads of Grain, from Different Fields.

CONTROLLING SWARMS.

A young friend of mine, a recent bee-convert, recently complained to me that, out of five swarms the past season, three had gone off directly, and the other two had gone some distance and alighted in most inaccessible places. This record appeared so remarkable to me that, on the young man's assurance that the people who had lived on the place before him had experienced the same bad luck, I went to look at his hives and explain the cause.

As soon as I caught sight of the place I was more puzzled than ever, but at my friend's lack of foresight. Not a tree, bush, or vine—not even a fence within many rods of the hive.

"My dear sir," I asked, "where did you expect them to alight?"

"Why, I don't know," said he, looking around for a possible roost.

"Which is precisely what has ailed your bees," I added. "They had to start away to find an alighting-place, and, when once started, found it inconvenient to stop at all."

I don't suppose there are many who are guilty of such ignorance as that, but there are comparatively few outside of the professionals who give the matter the attention that should be given. Times without number, almost, I have seen people climbing trees and out on limbs after a swarm that had lodged some place where they would not have allowed their small boys to go for a captive kite. "He might have kept his kite out of there." *You* might, nine cases out of ten, have kept your bees out, too, even though you did not see them start.

There is quite a general idea that, in the absence of some special appliance for their capture, a swarm of bees will alight pretty nearly where they please, about all the effort made to regulate their course being the antiquated tin pan and dipper process still more or less in vogue. It is necessary to become neither a squirrel nor a lunatic to keep bees. Watch two successive swarms that come from the same or adjacent hives. At first their course is almost identical, and an arrangement set for the convenience of the one would very likely be as agreeable to the other. But bees are not always willing to alight on the sharp end of a stick, nor even on the patent appliances for that purpose. Give them a good old grapevine trellis just before their door, and they are pretty sure to take the invitation to rest. Where but few hives are kept, these can be placed in one or two rows, all facing in one direction, and a single trellis before the row will do for all. Where too distant there is danger of their rising above it and taking some other course. If too close it interferes with their flight when at work. A little attention to their usual distance from the hive before showing an inclination to alight will locate the most favorable position surprisingly accurately. An apiary with which I am familiar in this neighborhood consists of three rows of hives facing the south, and a long grape-trellis about fifteen feet in front of the first row. In several years the hives have been there, only one attempt to fly off has been made, and only that one swarm failed to alight in that vine, from which they could easily be reached and taken from the ground.

WILDER GRAHAME.

UNCAPPED HONEY CANDYING; QUEENS IN UPPER STORIES; THAT SCRAPING-KNIFE.

Dr. Miller thinks me in error on candied honey from evaporation. The honey-flow here is very irregular, and, in consequence, I have throughout and at the close of the season a large number of uncapped partially filled cells. The honey in these always candies with me. This may be owing to the source of supply, as sage honey is said to not candy; but for twelve years past it has candied each year for me.

Dr. M. once thought there was "something peculiar" in my statement that the queen went up into the supers and laid eggs in every section of honey; but I have met other bee-keepers who have had the same experience.

The good doctor also objects to my section-scraper, as the widths of the sections are not alike; but the present uniform thickness of all sections will remedy that. Scratch away, Dr. M., but give us your wheat, when uncovered, for our chaff.

FOUNDATION, OLD — HOW TO MAKE IT GOOD.

Each season I have left over a lot of foundation. This gets hard, brittle, and dead-looking by the next season. It loosens from the sections, and drops down, or the bees gnaw it out, and it is next to impossible to make it stick to a section. I now cut this in pieces the size wanted, lay these on a board singly, put the board out in the sun, and watch it. In a minute's time the foundation changes its color to that of fresh foundation; and while warm it fastens very nicely to the smoothest sections. In the absence of sun heat I lay my board on the stove and remove the foundation as soon as its color changes, as the board gets hotter all the time and melts the comb.

E. H. SCHAEFFLE.

Murphys, Cal., Jan. 18.

CLOSING UP THE ENTRANCES TO RETAIN WARMTH IN SPRING; A GOOD IDEA.

Mr. Root:—Most bee-keepers have but little trouble in wintering their bees; but spring is where the trouble comes in, especially when bees are wintered in the cellar; but for the benefit of those who winter in the cellar and set their bees out in the spring, cold frosty nights have got to be contended with, and it is quite a bother to shut up the entrance at night and open it again in the morning. Now, I will just tell you how you can shut up 100 hives in ten minutes, and the bees will open the entrance when it is warm enough to fly. Take a half-bushel basket or a pail of dry sawdust, and throw a handful at the entrance of the hive so it will close it entirely—no danger of smothering. There will enough air go through the dust to keep them alive. Now, when it warms up next morning see how quickly the bees will clear the dust away and go to work. I have frequently hitched up a horse and gone five miles to shut up an out-apiary of 100 colonies, frosty nights, the last of April and the fore part of May. You will readily see, if I had closed the entrance with a block it would have necessitated a trip there the next morning to open them. We all know the trouble that might arise from chilled brood. A cold wind will blow into a hive, and chill the brood, and do as much damage as it would to a gardener or a farmer to have his corn frozen off.

W. L. COGGSHALL.

West Groton, New York, Jan. 16.

THE ZINC AND THE FOOTNOTES JUST RIGHT.

I wish to give my vote on the zinc question; also on the "everlasting footnotes." The zinc $\frac{165}{1000}$ is just right for me, and the footnotes—well, I indorse Dr. Miller's views, even to the word "perfection," which the editor left out. The footnotes are the right thing in the right place; and while the editor never fully agrees with me, I would not have them left out for any thing.

A. C. MITCHELL.

Enfield, Ill., Jan. 26.

[We have received hundreds of kind letters like the above. We can not, of course, give place to them all, but we hereby acknowledge our sincere "thank you all."—ED.]

PAPER-SHELL PECAN-NUTS.

By this mail I send you a pound of these nuts. They have the distinction of being served at the royal table, Windsor Castle; and although as yet I have not been able to get a testimonial from the queen I have some nice letters from other persons of distinction. Don't plant these, but let Mrs. Root and the children finish them. Should it happen that you want some for planting I shall have to charge you the same as every one else—$1.00 per lb. These are cheap at this price, for planting; but I fear you are living a little too far north. I have a letter before me, saying that my pecans took the premium at the World's Fair. I am writing to find out more about it.

E. E. RISIEN.

San Saba, Texas, Jan. 17.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N. Y.

SQUARE FRAMES, ETC.

Question.—Could we not adopt Layens' plan of bee culture by replacing in his hive a style or size of frame, say 14x12½, or by using Dadant's size of frame, 16½x10½, and still make a success of it? What do you think of the square frame? I am assured by men of experience that the Langstroth frame is not deep enough for the cold climate of Canada.

Answer.—If I have ever read of Mr. Layens' plan of managing bees and about his hive, I do not now call it to mind. Who of the readers of GLEANINGS can tell us something about it? But be his plan whatever it may, I wish to say this—that there are few if any frames now in use but that a man or woman of energy, and love for bee-keeping, can take and make a success with them. I believe in always having the *best* appliances, so far as may be; but I wish to put emphasis on the fact that it is the *man* or *woman* which puts the success into a thing, primarily, and the best appliances come in as a secondary matter. Although I have been an advocate of the Gallup, or square form of frame, all my life, still, as I have said before in print, if I had 50 colonies on any style of frame now advocated by as many as 20 practical apiarists, I would not consider it a paying job to transfer them to another style of frame, provided the hive containing these frames would accommodate the style of surplus arrangement which it was necessary to use, to place my honey on the market in the most marketable shape. No, no! It is not *all* in frames, as some assert, but it is in the man or woman with energy, push, and real worth enough to surmount every obstacle that stands in the way, and make a success of a thing in spite of a few minor hindrances. Look at Mr. Terry. Had he gone on to a rich fertile farm, instead of a poor one, he probably would have arrived at the same wealth sooner; but his success would not have been greater than now—perhaps not as great—and, in all probability, the world would not have been benefited nearly as much as it has been; for the overcoming of that obstacle in the shape of a poor farm gave a certain "vim" to the success that led him to tell others how it was done, and in this telling has come the greatest light to the world. Reader, if you find a difficulty in your way, and succeed in overcoming said difficulty, don't keep the matter hid, but tell us about it, and thus help the world. Don't be foolish enough to say, "no one will pay me for the telling," for that is a selfish spirit, and selfishness *never* pays; for in doing some kind act, or in trying to lift the burden from some tired shoulders, comes a wealth that money can not buy.

Now a word about a square frame for the cold climate of Canada. In most of the localities in Canada where bees are kept, the mercury does not go lower than it does here in Central New York. As the older readers of GLEANINGS know, I have gone over this ground of a shallow frame like the Langstroth not being suitable for our cold climate, many times. Bro. Root and myself had several tilts over the matter away back in the early seventies; and I still think there are some few things in favor of the square frame where bees are to be wintered on the summer stands; yet, as I said above, if I had 50 colonies on the Langstroth frame I should consider it a losing job to transfer them to a square frame, hoping for better wintering after they were on the latter. Since I purchased my out-apiary, the same containing Langstroth hives, I have modified my views to a great extent, and here wish to ask Bro. Root's pardon for not smoothing off the corners of some of my assertions more in our controversies of the past. Where bees can be wintered in the cellar, the Langstroth frame is not required to take off its cap or make a bow to any of the others, even in cold climates; and in a climate where bees have a chance of flying every two or three weeks during winter, no one has any occasion for looking for a better frame.

OLD OR NEW BEE-HIVES.

Question.—Will bees stand the winter as well, and be as healthy in old hives, or those having been used several years, as in new ones?

Answer.—When I first read this question it seemed to me that the proper answer to give would be this: Old hives in a good state of preservation, with no decayed spots and no open cracks, should be as good as new ones for wintering bees, and the new ones as good as the old; but after thinking a little I am not so sure about that answer. Years ago I found out that a single-walled hive painted on the outside would not winter nor spring bees nearly as well as an unpainted hive, on account of the moisture evaporated from the food of the bees not being able to pass through the pores of the wood, as was the case with the unpainted hive, this causing a dampness about the bees and on the combs which was not in accord with the best welfare of the inmates of the hive. All old hives, after long use, become so varnished with propolis on the inside that this places them in a condition similar to hives painted on the outside; and in cases where the slow passing of moisture out of the hives was not provided for by way of chaff or sawdust cushions, etc., I should expect that the bees would winter best in the new hives. But there is an item generally favorable toward the old hives, which is, that they are more likely to contain old combs; and it is generally conceded by all practical bee-keepers, and was given to the public away back in the fifties, by Quinby and others, that, other conditions being equal, bees will winter better on old combs than on new. This I have found to be universally true.

BEES AFFECTED BY MOISTURE.

Question.—Does moisture affect bees wintered on sugar-syrup stores in the same way it does those wintering on honey?

Answer. — That depends altogether upon where the moisture is—whether a damp outside air, damp cellar, or moisture in the hives. From the past few winters' experience, I think that bees winter best in a moist—yes, almost wet—atmosphere, and I do not think that a foggy misty winter has any deleterious effect on colonies wintered on their summer stands. The moisture which has accumulated up to the present time in my bee-cellar stands in drops and runs down the stone flagging overhead, to an extent sufficient to form little pools in the depressions on top of the side walls of the bee-cellar, and yet the bees appear to be wintering perfectly. It is so damp inside, that, should this winter prove as usual, mold will soon begin to form in different places; and by the time the bees are set out in the spring, some of these patches of mold will be as large as, and stand out like, the crown of a hat; still the bees have wintered well in this cellar, with the exception of the year I kept the oil-stove in there.

Inside the hives, the combs, bees, and all, seem to be as dry as when set in the cellar; but were dampness to collect on the combs and walls of the hives, about the bees, or run down on them, I should then have fears of injury. As to the stores, I believe that sugar syrup does not attract moisture as does honey. Honey seems very susceptible of moisture—in fact, more so than any other liquid with which I am acquainted.

LADIES' CONVERSAZIONE
? !

SOME INTERESTING FACTS FROM MRS. HARRISON.

While *en route* for my winter home at St. Andrew's Bay, Florida, the sailing vessel in which I was a passenger was becalmed in Santa Rosa Sound. My traveling companion and myself went on shore, and were hospitably entertained by a bee-keeper residing there. It was the 11th and 12th of January, and bees were busy working upon mulberry and peach bloom. There were about 40 colonies of bees, in tall box hives, from 10 to 12 inches in diameter. Our host preferred them from 12 to 15 inches, but he was not always able to get boards of that width. About 30 swarms the past summer were allowed to go to the woods. As there was no market for honey, his neighbors brought their pails, and honey was cut out of the tops of the hives and given to them.

Our host said that he had the large yellow bee of the South. I was all attention and curiosity at once. I went to the hives and watched the bees carrying in pale-yellow pollen. I caught a bee and examined it through a magnifying-glass, and could see no difference in any way from the common brown or German bee. I told my host so, and he said they were called the large yellow bee of the South. They had a small black shiny bee that was very spiteful.

Peen-to peach-trees have been blooming since October. A friend gave me to-day a peach larger than a pea, and the bees were working upon bloom at the same time. It is surprising how long bloom lasts in this climate. A cluster of bloom on a scarlet geranium has not apparently changed one particle. It is blooming out of doors. MRS. L. HARRISON.

St. Andrew's Bay, Fla., Feb. 1.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
36 PAGES 7×10
$1.00 PER YEAR

Thou hast been faithful over a few things, I will make thee ruler over many things.—MATT. 25:21.

THE election of officers of the Bee-keepers' Union shows that they were all re-elected. It is well. This makes again R. L. Taylor, President; G. M. Doolittle, First Vice-president; Thos. G. Newman, General Manager.

"EVERY thing is chuck full"—so says Barney, the boss printer. We have been obliged, in consequence, to leave out two or three of our regular departments; and this in spite of the fact that this journal numbers 52 pages. We even had to squeeze to get this in.

MR. NEWMAN, editor of the *Illustrated Home Journal*, has this to say regarding the recent improvements made in this journal for the current year:

> Bro. Root has made a great improvement in GLEANINGS for 1894 by "leading" the matter, making it much more pleasurable to read.

IN the *Review* for February is an excellent article by R. L. Taylor, on "Foul Brood: its Cause, Detection, and Cure." After having read it over carefully we do not hesitate to indorse every line of it. It is surprising how closely it agrees with the statements we made on page 539 last year, respecting this disease, and yet Mr. Taylor's conclusions were reached over a different route. We feel now more than ever, as touching this disease, that what we know we *know*.

THE report of the proceedings of the N. A. B. K. A., 24th annual convention, held at Chicago, is at hand. It is gotten up in fine style, and is profusely illustrated with portraits of the authors and some of the leading bee-keepers of the country. It also contains engravings of a large number of honey-exhibits at the World's Fair. Bro. York is to be congratulated upon its fine appearance. Price 25 cts., and can be obtained of Geo. W. York & Co., 56 Fifth Ave., Chicago, Ill.

THE symposium in this issue will bear careful reading—the whole of it. We would call attention particularly to the articles by J. E. Crane and Allen Pringle. As some of Prof. Cook's evidence is questioned a little bit by the negative, we shall be glad to have him reply. With this exception we believe it would be better to bring the discussion to a close until fall.

The evidence we have collected in the two journals will be put in pamphlet form, and will make 16 pages like this. We shall be glad to furnish them to bee-keepers at the cost of paper and printing; namely, one cent each. The distribution of these pamphlets, where ignorant prejudice has been making trouble, will do a world of good. Next fall we will revise it.

BASSWOOD HONEY AND BASSWOOD TIMBER FOR THE RISING GENERATION.

WE are just now getting in some of the nicest and whitest basswood plank that we ever had; and by way of explanation the farmers who are bringing it in say that it is from young timber that started up from the stumps where they cut down basswoods for us 12 or 15 years ago; and we think it is true, that basswoods are of that peculiar nature that, when an old trunk is cut off, and the sprouts are given half a chance, a basswood forest will be perpetual. The whole strength of the mighty stock of roots is given to the young shoots. Who has not seen them start up, and in a few months attain the size of a hoe-handle or larger? One of the conditions is, that stock be kept out of the woodland, and the growth of underbrush be encouraged so that it will be damp and shady where the young shoots start out. A low wet piece of ground is, as a rule, also more favorable. A little observation will show you what is needed to grow in this way basswoods for honey and for timber.

PARAFFINE AND FOUNDATION.

OUR attention has just been called to the fact that a representative of the Standard Oil Co. (a Mr. Schumacher) called upon the Goold, Shapley & Muir Co., of Brantford, Ont., and endeavored to sell them refined paraffine wax for the purpose of making foundation, and represented that the leading manufacturers of comb foundation in the United States were using the article. When further questioned about it he promised to send a letter giving the names. He did so; and the Goold, Shapley & Muir Co. kindly sent us the letter from the Standard Oil Co., under date of Feb. 7, 1894, from Cleveland, O., in which it is intimated that we use paraffine wax for that purpose, and that we bought of them. They did not state it as a positive fact, but say they *think* we do, though they have not looked up the records. The facts are, we do purchase of that company, about once in three or four years, a small case of paraffine wax—about 300 lbs. We advertise and sell it to melt in small quantities for paraffining barrels for shipping honey; and we also use small quantities ourselves for paraffining the candy-holes in queen-cages. The melting-point of paraffine being much lower than that of beeswax, it is much better for that purpose, but we never sell it for foundation purposes.

Now, replying to that charge we would say we have not used any paraffine in foundation for nearly twenty years, and even then in a very small way. We soon found, as did others at the time, that it was entirely unsuited for the hive. As to the other manufacturers of comb foundation in this country, we can speak quite as positively for them as for ourselves that we *know* they do not use any paraffine in foundation.

The representations of the Standard Oil Co., through Mr. Schumacher, amount to little less than libel, and we have written to them for an explanation. Messrs. Dadant & Son, Mr. Hunt, and the W. T. Falconer Manufacturing Co., we feel quite sure, when they know it, will not feel disposed to treat the matter lightly.

DIPPING THREE SHEETS OF WAX AT A TIME.

WHEN Mr. S. J. Baldwin, of Bromley, England, a supply-dealer, was here at the Home of the Honey-bees on a visit, we naturally talked over many of the kinks of the trade. When going through our wax-room he suggested to us using a counterbalance for dipping-boards in making the wax sheets for foundation. Up to the time of his visit we had been using dipping-boards some 30 inches long, dipping the same endwise into a deep vat of wax, only one board at a time. Mr. Baldwin told us that he used two and three at a time. With the counterbalance, the plan is this:

A common small pulley is attached to the ceiling, just over the dipping-tank. Through this is passed a rope fastened to a sort of gripper that holds three boards at a time, and spaced about an inch apart. The other end of the rope is passed through another pulley, some four or five feet away, attached to a counterbalance, or weight, that is just equal to the weight of the three boards and gripper. The reader will readily catch the idea. Gravity is completely overcome, and all the operator has to do is to plunge three boards, without weight, as it were, simultaneously into a deep tank of wax. We immediately put the scheme into practice, and find that we can now dip six sheets of wax in nearly the same time that we could formerly dip two, and with considerably less labor. We have been using two of these arrangements for a couple of months, and the women-folks do considerable scolding if they have to dip a few sheets of odd size without the counterbalance.

This idea will be found to be exceedingly valuable to makers of foundation; and while it may not be practical for the mass of our readers, it may be interesting to know of the latest mode of dipping.

UTAH HONEY SAID TO BE ADULTERATED WITH SUGAR SYRUP.

THE following is a clipping that appeared in the Cleveland papers, and we give place to it, slangy heading and all.

DON'T MONKEY WITH THE LITTLE BUSY BEE'S GRUB.

> Whosoever supplies the busy little bees with sugar or syrup, and sells the honey made therefrom by the bees, violates the law, according to a decision made by Prof. Smith, of the Case School of Applied Science. On Saturday last, Justice E. H. Bohm fined Frank Jankovski, a wholesale dealer in the product made exclusively by the bees, $25 and costs.
>
> Jankovski's place of business is located on Frances St. Prof. Smith, who analyzed the honey, testified that it contained 15 per cent of sugar and syrup. The honey originally came from Utah, and was sold to Jankovski by a Chicago firm.
>
> Attorney W. A. Babcock, for the defendant, will appeal to the common-pleas court, claiming that Jankovski was ignorant of the fact that the honey was impure. Prof. Smith's statement has caused considerable comment, and a fine point for the legal talent to decide is now on the tapis. Mr. Smith says that, when sugar is fed to bees, their owner expects that honey will be made therefrom, and therefore is as guilty of violating the law as though the sugar were mixed in with a spoon.

Mr. Jankovski has sent us a sample of this honey, stating that it came from S. T. Fish & Co. The latter acknowledged sending Mr. Jankovski this honey, but they insist that it is absolutely pure honey from Utah. Samples have been submitted to us, and we unhesitatingly pronounce it pure, and just like the Utah honey that we have seen and tasted in Utah. See our editorial on page 103. Sweet-clover honey from Utah, when candied, is as white as lard. When not candied, the honey looks almost white, not unlike sugar syrup; and, indeed, in flavor it gives one a suggestion of it. We do not wonder, therefore, that consumers think that this honey is sugared.

We know nothing against Mr. Jankovski; but, on the contrary, judging only from the general candor of his letters, we believe him to be thoroughly honest and reliable. We feel very sure, from our dealings with S. T. Fish & Co., that they are entirely straight. They have been making an active fight against adulteration of all sorts, and are building up a good reputation on strictly pure goods.

Now, it looks to us as if Prof. Smith had jumped a little at conclusions. Observing that the honey candied as white as lard, and when uncandied looked white, and tasted a little like sugar syrup, he possibly wanted his chemical analysis to show sugar. Again, it is well to observe that he found only 15 per cent of sugar syrup. If any one is mean enough to adulterate at all, he would not stop at 15 per cent, but put in enough to make the operation pay. The result of the analysis is an absurdity on the face of it.

We can not now place our fingers upon the authority; but, if we are correct, pure bees' honey may show anywhere from 3 to 12 per cent of the same chemical qualities found in cane syrup; that is, it is there from the flowers. In the second place, we know the best chemists, while they are perfectly sure they can detect any quantity of glucose in honey, are not so sure regarding small per cents of sugar syrup. Especially is this true when it is fed to bees or passed through the process of "inversion," as it is technically called.

Finally, it looks as if Prof. Smith has been reading some of the sugar-honey articles that appeared a year or so ago in the bee-journals. He is probably aware of the fact that some bee-keepers consider the practice of feeding bees sugar, to produce sugar honey, perfectly legitimate and proper. The knowledge of this leads him to suspect that the producer of the honey above mentioned has been feeding his bees sugar syrup. We do not believe, from the general characteristics of the Utah (or sweet-clover) honey that any sugar syrup found its way into the honey, either through the bees or otherwise.

S. T. Fish & Co. feel that their good name is at stake, and, we understand, expect to push the thing a little further. We should at all events like to see analysis of this honey from Prof. H. W. Wiley, the Chief Chemist at Washington.

CHARGING OLD SUBSCRIBERS MORE FOR THEIR JOURNALS THAN WE DO NEW ONES.

ALMOST every season, especially after we make some special effort to get GLEANINGS introduced into new localities or new homes, we are accused of making our old friends pay more for their journal than we do entire strangers. In fact, one friend writes as follows:

> It is unjust to charge a ten-year subscriber more for your paper than one just commencing.
>
> Bates, Ill., Jan. 20. J. R. MORRISON.

Now, from one point of view there is some justice in the above charge; but I do think, taking all things into consideration, that it is not quite so bad, after all. It is true, we have many old and tried friends who take our journal right straight along, year after year. We recognize them as the main props in keeping up our circulation—we always feel under obligation to them; and the very first announcement on the inside of the first cover grants special privileges to these main props in this way: We send GLEANINGS two years for $1.80; three years for $2.40; five for $3.75. You see this makes the price only 75 cents to the veterans. Now, after having done this we frequently say to these same veterans, "If you will show the journal to your neighbors we will pay you liberally." Just one illustration: The

Gault perpetual raspberry, that promises to make such a sensation in small fruits next season, worth $1.00 each, or $10.00 per dozen, is offered to anybody who will give two new names at a dollar each. If old subscriptions are sent in, however, instead of new ones, we require *four* names instead of two. The difference is this: You probably know which of your neighbors take GLEANINGS. Suppose you go to them in December, and say, "Neighbor H., you are probably going to take GLEANINGS next year?" He assents, and then you say, "Let me send and get it for you, for I am making up a club to get a raspberry-plant." In doing this you do not extend our circulation a particle, for he was going to take the journal any way; but the man who solicits and obtains a *new* subscription frequently gets it into a new neighborhood, and the new man in turn gets it into *other* new neighborhoods. Almost every periodical published makes a special effort to extend its circulation in this way—that is, if the publisher is a live man. Another thing, the special low rates offered for new names are for the first year only. The man who has taken it once, if he wants it continued is thereafter a renewal and not a new name. Once more: If the observation made by friend M. is just and fair, we must have one price on our journal for everybody. The man who sends in a list of ten names, and the man who sends for GLEANINGS for ten years ahead, must pay just the same as he who takes only a single copy for a single year. If the editorial heads are not level on the above question, we should be glad to be righted. We can not, however, afford to give space to a discussion in regard to the matter without any new points being brought out. A. I. R.

SIMPLE METHODS OF DETECTING GLUCOSE ADULTERATIONS.

Bro. York, replying to our editorial on page 63, wherein we criticised Veteran for not making his glucose test thorough, calls our attention to the fact that the directions that Veteran went by differed from those that we had; that Veteran's test was thorough, according to *his* directions. And now Bro. York asks how we may be able to detect glucose by the taste, and asks for a simple formula for detecting adulterations in honey. Why, bless you, Bro. York, we thought we did; but as we did not, perhaps, make ourselves clearly understood, we will explain more fully

THE TASTE TEST FOR GLUCOSE.

Such glucose as is used in commerce has a disagreeable, rank, metallic taste, very pronounced; and one who has tasted such pure glucose can easily recognize the stuff when mixed in honey; that is, providing the proportions are not less than 25 per cent. This can be done as easily as the good housewife can tell whether salt has been put into an oyster-stew. In fact, we believe *we* could tell quicker, ourselves, glucose in honey than salt in the stew. It is impossible for us, of course, to set forth in language just how the glucose tastes in honey, so we have sent to Bro. York a sample of the finest glucose we could buy on the market—that is, such glucose as is used commercially for adulterating. It is called "Crystal A," the very best. Now, if Bro. York will take a liberal dose of this glucose, and, later on, get his better half, or somebody else, to introduce, "behind his back," proportions of ¼, ⅓, and ⅔ into variously numbered samples of honey, we think that, when they are placed before him, together with samples of pure honey, he will be able to separate "the sheep from the goats."

We ought to say, in this connection, that there is glucose from which the rank, disagreeable, metallic taste has been almost entirely eliminated, and the use of which in honey might not be detected. We have had small samples here; but we can not get it for less than 5 cts., and this would be more expensive than sugar syrup. If this is true we have, therefore, practically nothing to fear from glucose of this quality. It is only the rank disagreeable stuff costing about 2¾ cts., which we have sent to Bro. York, that is used commercially. As to Veteran's experiment with the use of alcohol, we have to acknowledge that his formula was not the same to which we referred. In looking over the test which he followed, we find it to be a sort of corruption, evidently taken from the alcohol test which we took from the *Bienen-Vater*. That test reads as follows:

> Take a tablespoonful of honey to be tested; pour it into a small bottle, and then add three spoonfuls of pure spirit, and shake the whole together thoroughly. In about a quarter of an hour there will form in the bottle a cloudy, whitish sediment; and from this one may be sure the honey is adulterated.

This, if carefully followed, will, we believe, give quite satisfactory results. We did not mean to say, on page 63, that *all* forms of adulteration can be detected; but we desired to convey the idea that it was our belief that *ordinary glucose* mixtures of honey could be recognized by the ordinary bee-keeper. The principal and only adulterant of honey is probably glucose. Sugar syrup is used rarely if ever.

In conclusion we would say that the only way to detect glucose (that is, the commercial article) in honey *by the taste* is to get a small sample of the stuff and learn how it tastes. If any of our readers want to make the "taste test," as above given, we will send a sample of the "pure stuff" for 10 cts., to pay postage and packing.

P. S.—Since writing the above we have learned that a number of glucosed samples of honey, together with other samples of pure honey, were placed before Prof. Cook at the Los Angeles convention, recently held in California. The Professor recognized each one by the taste.

OURSELVES AND OUR NEIGHBORS

BY A. I. ROOT.

Give, and it shall be given unto you; good measure, pressed down, and shaken together, and running over, shall men give into your bosom.—LUKE 6:38.

A PRIVATE LETTER TO A. I. ROOT.

Friend Root:—I notice in your Home talk for Jan. 15, as a remedy for the hard times, you exhort the people (at least the poorer class) to economize more —that is, to work harder and live closer. Now, our politicians and most of our leading papers say that the low prices now prevailing are due to overproduction. Now, if that is the case, to work harder would be to *produce more;* and to live closer would be to consume less. Do you not see that that policy would only augment the trouble? Would it not be more reasonable, if overproduction were the cause of hard times, for the people to work less and consume more? But, again, is there such a thing as overproduction? When hundreds and thousands of people all over our land are famishing for the very necessaries of life, is it not a case of underconsumption? S. FARRINGTON.

Corunna, Ind., Jan. 22.

I may add, there is more to the above kind letter, but we have hardly space to go into it here. I think I know pretty much all that our friend mentions, and I took the matter into consideration when I gave the advice that we should make our expenses come within our income. I would do this *first*, and then I would undertake to right some of the great wrongs that are afflicting our country. The man who is in debt is in poor shape to remedy great evils. Besides, if he should undertake to repudiate his debts he would, in most cases, wrong his neighbor who may be suffering in exactly the same way he himself is. The remedy I have been preaching and practicing for having so many unemployed people in our land, is to set them at work raising or producing the things they consume. In this way there are no middlemen: there are no railroads to defraud the poor man of his earnings; there are no banks to rob him. Yes, I would not only produce from the soil the food we need, but I think I would go back to producing the clothes we are to wear. Our forefathers got along very comfortably, raised large families of good men and women, and it can be done again. I despise the man, as much as any of you, who pays five or ten dollars for his dinner, or, if you choose, even one dollar for his dinner right along, when people are almost starving for the very cheapest and coarsest food. When this same man puts on airs, and thinks he is too good to touch people who labor for a living, it awakens feelings of disgust in my heart. Yet I would not advocate violence or anarchy. I would simply *starve him out*. I would be both *producer* and *consumer* of the things I needed, to avoid paying him interest or rent, or the tremendous profits such men sometimes receive, taken from the poor man's earnings. While I say this I recognize that God seems to have so ordained it that some men should furnish capital while others should furnish brains and muscle. I am not afraid that consuming *less* and working *more* will aggravate our troubles, providing more people can learn to set themselves at work without asking anybody, unless it be the great God above, to furnish that employment. I want to see more people working for God instead of for some human boss. I want to see more people working *with* God. I want to see them making use of God's sunshine, air, and rain, without paying any human being for the privilege of so doing. Our land is broad enough, and the world is wide enough, so there need not be any suffering for want of food or clothing.

The present age needs educating in regard to this matter of finding employment. Humanity must not get into a fashion of thinking that somebody *else* is to find them a job. They must not drift into a way of sitting down helpless because nobody wants to hire them. Get at it, and be busy at something until somebody wants you. You know this is a subject on which I have talked and exhorted, over and over again. In fact, I have published two books with this special end in view. I do not know how I can better illustrate what I want to say than by quoting from my own life; but please do not think, dear friends, that I want to boast.

When I was a very small boy my mother says I always found something to interest me, and something to enjoy. I never came to her saying, "Mother, please tell me what I shall do." I can remember vividly when I began to notice the multitude of wonderful things there are in this world. When quite a child I became interested in seeing the ants work building their hills; and whenever I had leisure I enjoyed myself hugely in studying their movements. The sight of the growing grass, the budding branches, and all these things, were an unceasing delight; and when I discovered it was my privilege to have a *hand* in the great machinery of life, it was a new delight. My first business in the way of earning money was in keeping poultry; and after I had got two "biddies" of my own to care for and study—from that time forward, I think I may say, I have never been out of employment. I began studying the wants of my two hens, much as the experiment stations carry on their work nowadays. I quickly began to note the effect that certain kinds of food had in regard to the matter of the production of eggs. I walked eight miles to the bookstore to get a book on poultry I saw advertised; and I sat down so often on the way to study that wonderful book that I came near not getting home that same day. About this time Moore's *Rural New-Yorker* was started. It was taken by my grandfather, who lived two miles and a half from our home. They did not want to lend the paper, so I managed to be on hand as soon as it came from the postoffice. Other papers were scanned for their articles on poultry. I learned to pound up bones with a hammer, and drew butternuts in a little wagon, said butternuts being pounded up much as we did the bones for the biddies. Then the *Rural New-Yorker* told me how to make use of the poultry *manure*, and that opened up agriculture. Busy! Why, not only was I busy, and having fun too, every minute of my boyish life, but I presume I could have set other people at work too, providing I could have found people to think *while* they worked. Let me illustrate:

I do not like to find fault with these good friends near me here; but I want to tell you what an unexplored region there is before the people of the United States.

Plumbing and gas-fitting are at present quite a department in our establishment. There are water-pipes, steam-pipes, air-pipes, and pipes for almost every sort of purpose, running in almost every direction. These pipes save us steps, and, of course, there must be attendant valves, elbows, T's, unions, reducers, and all the attendant fixtures. The piping and the sewerage have, in some way, fallen under my supervision. I have begun to think I might be called "hydraulic engineer" of the establishment. Well, you do not know how I have wanted trusty helpers, or a trusty helper in this work. In putting in my storage battery or heat that warms our home, I became acquainted with a boy who had served a sort of apprenticeship in plumbing. He helped me and I helped him, and we got along nicely together. In skill and muscle he is all I could ask; but in the way of brains and this matter of thinking continually what he is doing, he does not quite come up to my standard of perfection. By the way, *no one* ever did, and I do not know that any one ever will, while I live at least. We see illustrations of what thinking men may do in this way, but we realize there is an unexplored region in that line. Nobody knows what humanity may bring forth yet in the way of a *thinker*. Edison started out and shot across the horizon like a bright meteor. Who can contemplate the strides he has made, and the blessings he has brought to the world, without wonder and surprise? Let us now go back to that boy friend of mine.

One day it became necessary to shut the valve that comes from the windmill—in fact, to cut off the whole water-supply of our establishment—for about five or ten minutes. I objected, and asked if there were not some other way. They said there was another way but it would take a good deal longer. If I would consent to having the water cut off for just *five minutes* they would have it all fixed. Well, I planned to stand right there during the five minutes and see that the big valve was promptly opened just the minute the connection was made, for we had had some sad experience in having work stopped, such as the horses led off to the creek for water, somebody tinkering with hydrants, spoiling them by twisting them too far, or the wrong way, simply because the accustomed water did not come. I made all the arrangements, and saw the big valve closed; but something else of importance called me away. Before I left I said to the boy, "Now, Harold, you be very sure you open that valve just as soon as that connection is made." He declared he would; and the man who was helping him said too that it would be opened inside of three minutes. I went away, and supposed every thing went smoothly, until, some time in the afternoon of the same day, the foreman of the wax-room wanted to know how long the hands had got to hunt up some other work because the *water was cut off*. I think likely I scolded some. I went for the boy, and asked him if it were possible he forgot to open that valve after all the fuss I had made about it. He hung his head, and admitted that it was not opened at all after they got done. When I asked for an explanation he did not say any thing. As he was but a boy, and such things are boylike, I let it go. Now, if it were only *boys* who make mistakes of this kind I would not mind. This kind of work is all through the laboring classes. Of course, the circumstances are not always so aggravating.

When carrying the exhaust steam over to the house, after I got the apparatus all rigged, the arrangement did not work as I expected it to. The pipes were warmed somewhat, it is true; but for nearly a week I fussed and bothered to see why the exhaust steam did not come through the tiles as it ought to. The engineer grumbled some because the steam was making a back pressure on his engine; and the boys rather thought—at least I rather fear they did — that some of father's experiments for warming the house without cost might result in a pretty *big* cost. After a deal of study I located the trouble. The big iron pipe at the end of the line of tile, was stopped up in some way. We dug it out and held it up to the light, but—*there was no hole through it!* The men, in raising it up to its place, had let it stand for a second in the soft muddy ground. The lower end was plugged up with a couple of inches of yellow clay, and in this condition the apparatus was expected to work.

Again, the drip-pipe near the engine, that was to carry off the accumulation of water from the condensation of exhaust steam, did not work—at least, the water dropped only very slowly. The men thought it was all right, but I declared it should run a quarter-inch stream continually. The drip-pipe was pulled up; and the last piece, not more than six inches long, was found to be plugged up near where it entered the elbow. I spoke to the boy—the same one I have mentioned: "Harold, when you are putting up piping do you not always look through each piece, or blow through it, to see that it is clear?" He said he did sometimes, and sometimes he didn't. I added: "But when you have a little pipe, only six inches long, you surely hold it up to your eye to see whether there is a hole through it, do you not?" He admitted he did not. Now, I wonder how many plumbers or gas-fitters there are in our country who are in the habit of making it their business to see that there is really a *hole* clear through the pipes they are putting up. Cutting off the drip-water had necessitated the exhaust steam moving all this accumulation of water several hundred feet *up hill*.

Once more: One of the hearing-tubes of our phonograph refused to talk. I do not know how much expense it made us, nor how long the boys worked at it to find the trouble; but after some of the boys—I think it was John—got sufficiently in earnest about it he held it up to the window and looked through it. What do you think? A little spider had spun a web clear across the tube, from one side to another. I suppose that, as he progressed with his delicate silky fibers, the voice from the machine began to be more and more indistinct. When he had got his web completed we could not hear at all. All these expensive troubles are the result of lacking thought, or need of brains, if you choose. They are all simply a blunder; and if the workmen who had them in charge had been constantly thinking and studying his business, and having his whole mind concentrated on his work, in his anxiety to have every part perform its office, these things would not have happened. Yes, it *would* be more than human to demand that one should never make mistakes.

Our radiators at the house were all working beautifully, when all at once one of them began to leak a little. I told Mrs. Root that the heat and oxidation would soon close up so small a leak. But it didn't. Finally one corner of the carpet was being so constantly soaked by this slow dripping it would ruin it if not stopped. The leak was close to an elbow, and there seemed to be no remedy except to draw off the water, take down the pipe, and screw it up tighter. Mrs. Root had thought several times before, that she had had all the fussing with tongs and wrenches, and men with greasy fingers, that she could stand for one winter. I greatly disliked the idea myself of tearing up our work when the pipes were finished and bronzed, and every thing, except that one leak, so clean and perfect. Just before going to bed one night I soliloquized thus: "I turned up that joint myself, and I am sure it is tight enough so it ought not to leak. Is it not possible that a little brains will obviate the necessity of pulling things to pieces?" I told Mrs. Root what I was thinking of, and asked her to bring a certain light hammer she always keeps in a particular spot in the pantry. Then I got the best lamp with a large clear blaze, with a good shade, so as to concentrate the light. I found that, by lying flat on my back, and pushing my face close to the radiator, I could get a glimpse of the spot where the water came from. With a clean cloth I wiped the water all off and watched its reappearance. In a minute I was ready to shout "Eureka!" The leak did not come from the joint at all. It came from a minute sandhole in the malleable iron in the elbow. There was very little room to use the hammer in such a place; but after twisting myself in some more queer shapes I managed to get a pretty fair blow with the peen of the hammer. Two or three strokes did the business, and I just felt happy when I saw the last drop of water curl up in a little wreath of steam, and the pipe was left dry, clean, and hot. Over and over again I have seen mechanics go to work and spend hours of time and considerable money when almost a single tap with a light hammer in just the right spot would have been a perfect cure for the thing they were trying to remedy. All that was needed was skill and brains to wield a little hammer. On one occasion, expensive men were employed, one after the other, to remedy a peculiar trouble with the pump. They finished the job, so they said, and they got their pay. We are sure of that. But they went away leaving the pump no better than when they came there. Finally a mere boy studied out where the difficulty was, and fixed it himself.

Now, people are out of work because it costs so much to have any thing fixed. People can not stand it. They have been humbugged by paying to have things done only to find them no better, but sometimes worse. You may think I am complaining of humanity. I do not mean to. I make stupid blunders myself, and a great many of them. But I am *learning* every day of my life. If I were out of work I would commence educating myself to repair domestic machinery. When I first started in business as a mechanic I did this very thing. My business was watch-repairing; but if anybody wanted me to mend a coffee-mill I took it thankfully and cheerfully; and I made sure the coffee-mill did good work by actual test; and then I made sure again that my price for repairing was not more than the mill was worth. To do this I sometimes worked for one-fourth of regular wages. But I was determined to build up a business, no matter what it cost, and most of you know how I have succeeded.

The market-wagon came around a few minutes ago, with the back springs broken down. Three pieces of steel were snapped. As the roads were a little rough, it is not very surprising; but I have learned by experience, however, that there is almost always a very plain reason; and, nine times out of ten, if we investigate we shall find the breakdown resulted from carelessness or forgetfulness. After giving directions to the blacksmith about an immediate repair I took hold of the hind wheel near the break, gave it a shake, and saw that it slipped on the steel spindle nearly an inch.

"Why," said the blacksmith, "you have lost out the washers I put in there about six months ago. Don't you know I told you that whoever greased the wagon must be very careful that the washers should not drop out and be left out when the wagon was greased?" We always grease the wagon while it stands in the middle of the floor of the room where it is kept over night and loaded up. If the washer fell out it dropped on the floor. The shake of the load, in consequence of these washers being left out, was probably what caused the break of the springs. The driver said he knew it had been out a long time. The world is clamoring for men who think—who are alive to the interests and rights of other men. People come to me day after day, with pitiful faces, saying they have nothing in the world to do, and do not know where they can find employment. Now, may be you think I am rough and severe; but I can hardly believe there is a man, woman, or child in our land who has absolutely *nothing* to do if such persons were dead in earnest in *wanting* something to do. Even if we are out of work, it costs us something to live. Food, clothing, and fuel cost money. There are few people, especially poor people, who take care of their clothing as they might do, and who take sufficient pains in keeping it in repair; and the same with shoes. My boots are promptly and properly cared for, and they will last two years and do me good service; but a great many do not care for their boots or shoes at all. If they clean them they rarely or never oil them. The simple matter of neglecting to oil your boots and shoes will make them wear out in six months or less, where they might otherwise last two or three times as long—if also repaired promptly and judiciously.

During the winter time we must pay out more or less for fuel. The way fuel is commonly used, half or three-fourths goes up the chimney. Using the intelligence that God has given, you will cut down the bill for fuel a half or possibly more. See to it that the wind does not blow under your house and up through the cracks of the floor nor in around the windows. I believe in ventilation, but you can have the best ventilation in the world and save your fuel besides.

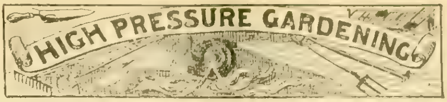
When I was quite a small boy I became interested in this matter of protection from the weather. I wanted to work with tools; but there was a family of seven children, so my tools and my work would be rather in the way in the house. I made a little shop of my own, outdoors; and when the weather was severe I warmed it with a brick oven of my own manufacture. After I had had experience in having my eyes filled with smoke, I learned my first lessons in conducting smoke. The cellar to your dwelling can be made very comfortable, and a neat work-room during the winter time.

For ten or twelve years a great part of the cellar under our home has been so untidy—I don't like the word "untidy" after all, for Mrs. Root has persisted in sweeping and scrubbing it up in spite of all difficulties; but since we put in the new heating-apparatus we have had the walls whitewashed and the floors cemented, and now it is such a pretty, light, warm room that Huber prefers it for a playroom, and the girls are going down there to study their lessons. The place has been made so pleasant that I feel happy every time I go down there to take my accustomed nap just before dinner. With some hard work and a little expense, almost every home may have a cellar that will do quite well for a workshop in winter.

When Orange Judd was a boy in college he ran short of funds. He too had learned to "fix things" in his childhood. Well, he wanted money, and he wanted the most he could make in a short space of time. He went off across the country fixing clocks. Would people employ an unknown adventurer? He told them he was coming back a month later, and he did not want any pay until they had tested the clock thoroughly. Of course, there was no trouble in getting work in that way; and there will be no trouble in getting work *now*. If your determination is to give full value for the money you will receive, and if you are prepared to be *responsible* for your work, everybody will want you.

A good deal has been said about cutting off the profits of the middlemen. I am not quarreling with the middlemen. I do not believe they are cheats. But there is a certain kind of middlemen that we can cut off as well as not. We can withhold our patronage from the saloon-keeper, for one thing, and in the same way we can withhold our patronage from all who are speculating out of the earnings of poor people. Our agricultural papers have had much to say in regard to farmers selling produce directly to consumers. Find somebody who needs the stuff you raise, and then make a short cut by delivering your product directly to him. You understand, of course, my remarks are directed principally to those who are suffering because they have nothing to do, or because the work they are doing does not pay sufficiently. It may be that *muscle* is plentiful in our land; but of brains there never was an oversupply. There is not and never was an oversupply of earnest, honest thinking men and women—the kind of people who think for others; who love their neighbors; people who always make it a business to take a stone out of the highway—a stone that may injure a wagon, and gall the shoulders of the poor hard-working horses. We want men and women who, no matter what they are working at, would never think of doing such a thing as to put in a piece of piping without first looking through it to see if there were a hole through it. We are not all going to be plumbers, but we are, all of us, laboring for somebody. The consequence of our blundering often costs dollars. A poor woman once came to me begging for employment. I set her at work. She was trusted one day to mail some garden seeds. A man wanted some Wakefield cabbage seed to plant right away. It is true, he wanted only a five-cent paper; but this new clerk sent him an empty printed wrapper, without any seeds in it at all. She had not love enough in her heart for her fellow-men to simply pinch the empty envelope while it was in her fingers, to see whether there were any *seeds* in it or not. She said it was only a mistake. Some of the others took her part, and thought I need not make so much fuss because of a simple thing like that—picking up an empty seed-bag instead of one that contained seeds. Now, I am trying hard to make myself understood. The idea is this: He who commences any sort of business, or who commences to earn a living, should have, first and foremost, at the bottom of his heart a deep and sincere anxiety to *do good* in the world—to be helpful; and he should be so anxious for the welfare of his fellow-men that, whenever he undertakes to serve them in any capacity whatever, he should look out for their interests. I do not know exactly the circumstances of your own life, so I can not map out in detail just what would fit your case; but a love for humanity—a love for Christ Jesus, and a sincere desire to do right by your fellow-men, recognizing that the eye of the great God above is constantly over you, will, I am sure, bring you plenty to do, and at reasonably good pay. "Give, and it shall be given unto you," the Bible tells us. I do not understand by this that you are to give money or bread and butter to tramps; in fact, I do not think it means that at all; but it does mean that, in your daily work, you should give good and liberal measure to your neighbors, to your men, to your employer, to your hired man, to everybody with whom you have to do. Be liberal with them; look out for their interests, study their comforts and their needs; plan so as to avoid accidents, hitches in business, delays and disappointment, and they will in like manner plan for you; and the great God above will, in his loving kindness, plan for, look after, and protect you both.

I get more inquiries from my ad't in your paper than from any other source. W. H. PUTNAM.
River Falls, Wis., Jan. 12.



ONIONS.

I do not know but some of the friends will think this is an onion number, even though in one respect the onion business is not very encouraging. I hear that, in some localities, very fair onions are offered at from 75 cts. to $1.50 a barrel. Never mind. There is money in onions yet. The seed-catalogues are quoting potato onions at from $2.00 to $2.50 a peck. What do you think of that—from $8.00 to $10.00 a bushel, to say nothing about a barrel? and onion-sets are about the same price as potato onions. By the way, what is the reason nice onion-sets are quoted year after year at from $4.00 to $6.00 a bushel or more? I believe they can be grown almost anywhere, and children very often grow the very finest. And, by the way, what has become of the old-fashioned top onion-sets? When I was a boy I made quite a little money growing onion-sets. My mother showed me how. We just planted big onions, and the sets grew on top of the stalks, like the Egyptian onions, and all these sets made nice large solid onions, and onions that were good keepers. Furthermore, after all the sets had been gathered, the onions could be taken up and put into the cellar, and the next year they would bear another crop of sets, and so on.

We never had a bit of trouble in selling our product. The nearest grocery would take the whole lot at a price that paid big. A good many times the grocers would be bidding against each other in order to get them, especially if they were nice and clean. Who will tell me what these onions are called? I see something mentioned in one of the catalogues, but they do not give any name for the onion. They call them top-sets, or buttons, and say they will produce large onions *quicker* than any other kind of onion seed. It stikes me I should rather raise them than to raise the sets that grow in the ground. Another thing, these top-sets were much more solid, and never sprouted in keeping over winter, as the sets that grow in the ground do. They were always marketable, and were not constantly deteriorating.

Oh, yes! I did find one Chicago house that offered onion-sets for $3.50 a bushel. I sent for samples, but they had not even been put through a fanning-mill to blow out the chaff. The onions were soft and wilted also. We have growing in our greenhouses, chives, multipliers, potato onions, and shallots. By the way, I am greatly interested in this shallot business. They are the firmest, handsomest little onion you ever saw, and they keep splendidly, so I am told. Read the following:

SPRING SHALLOTS.

A. I. Root:—At your request I will describe what I have always known as spring shallots. There are two varieties, red and white. The white are the best in every respect. They grow larger, and are sweeter. They do multiply. We put them out in the spring as early as the ground will do to work; put a single one in a place eight or ten inches apart, and there will be a dozen or more come from the one. When they get five or six inches high, thin out for bunch onions. You can pull out all but two or three, and they will send up seed-stalks and make seed which may be sown as other onions, and they will make beautiful little sets, which, in turn, will multiply. Their principal value is for bunch onions, on account of earliness. I never raised any except for family use, but think they are almost invaluable in a large family. The red are the same in every respect, but do not grow as large as the white.

Shallots are very hardy. Pile them up in an out-building on the ground, and throw any coarse litter over them, and they will keep till spring perfectly. I suppose they would do well in the greenhouse through the winter.

Rail, Mo., Jan. 8. N. A. E. ELLIS.

From the above it would seem that these shallots bear top-sets like our old-fashioned onions. But this statement contradicts what we said in GLEANINGS—see page 862, last year. The Cleveland Nursery Co., Rio Vista, O., told us they do not run to top-sets. Well, here is something more in regard to chives, shallots, multipliers, etc. The letter looks as though it ought to be authority in regard to the matter:

Friend Root:—The shallot, or eschalot (*Allium Ascalonicum*), is a native of Palestine. It was first introduced into England in 1548. It is quite extensively cultivated, and used in the same manner as the onion. It can be increased only by division. In this latitude the bulbs should be planted during the month of October, in rows about 18 inches apart, and 6 to 8 inches apart in the rows. They require rich soil and thorough cultivation to secure the best development of the bulbs. With Southern gardeners, shallots are one of the earliest and most profitable crops, their shipping season being from the first of December until March.

Chives (*Allium Schœnoprasum*) is a native of Siberia. It is the smallest of the onion family, and one of the finest-flavored, of very easy culture, propagated by division.

Garlic (*Allium sativum*) belongs to the same genus as the onion and leek. It is a perennial, and grows wild in the southern parts of Europe. It is more esteemed as a medicine than as an article of food. The plant, especially the root, has a pungent taste, and the odor, which is very offensive, is far more penetrating and diffusive than that of the onion. It is said that, when garlic is applied externally, the smell can be observed in the breath and perspiration.

There are also the common field garlic (*Allium vineale*), supposed to have been brought to this country from Wales, and *Allium Canadense*, or wild garlic, which is indigenous, and commonly found in moist meadows. The two last kinds are quite a nuisance in some localities. S. W. PIKE.

St. Charles. Ill., Nov. 24, 1893.

Now, then, it is bad enough to have onion-sets, both top and bottom, quoted in all our seed-catalogues, year after year, at from $5.00 to $10.00 a bushel, let alone having shallots, multipliers, and potato onions, quoted at the same price. Why, I wonder what these catalogue men are thinking about. Have they got the idea that the world in general—I mean the gardening world—are so lazy that, instead of raising their own onion-sets, or, rather, instead of saving some over for seed, the great gardening world is going to buy of them, and pay them $2.00 a peck? It is positively ridiculous. If the readers of GLEANINGS alone can not fill this "long-felt want," and bring down the price of these garden commodities, then I am ashamed of them—that is all.

In order to give you something of an idea of how it is to be done, I am going to copy quite considerably from an article that appeared in that excellent home paper, *The Country Gentleman*, about a year ago. It gives us a glimpse of a place in York State where they raise potato onions by the carload; and out there they are glad to get even $2.00 a *barrel* instead of $2.00 a *peck*. I do not know whether they have got any this year or not. By the way, if any of the readers of GLEANINGS know where we can get potato onions, multipliers, and shallots, say for $2.00 or $3.00 a barrel, I wish they would write and tell GLEANINGS, and I will give them a free advertisement for a little time, and see if we can not find where we can buy these things at reasonable prices. Now, then, for the "how to do it."

ONION-GROWING IN NIAGARA COUNTY, NEW YORK.

[An address on Onion Culture delivered before the New York State Ag'l Society Farmers' Institute, Middleport, N. Y., Jan. 5, 1893, by Wm. Bathrick.]

About thirty years ago Mr. Zadoc Stewart, living on the Ridge road three miles north of Middleport, bought and planted a half-bushel of English Multiplier onions, the first ever grown in our locality. He saved all his crop from year to year, and planted them all until he had what seed he desired, believing that onion-growing on a large scale would be a profitable business. Although he did not live to see the full development of his plans, the events of years have proved how well his predictions were founded. Twenty years ago Mr. H. H. Bickford, who bought the farm after the death of Mr. Stewart, barreled and shipped the first onions ever sent from Middleport in carloads. He shipped 567 barrels at $4.12½ per barrel, which amounted to the handsome sum of $2339.87. From that time forward others have engaged in the business, and their numbers and the quantity raised have steadily increased, until at present there are about thirty men who grow from 50 to 600 to 800 barrels each, besides many more who grow them in smaller quantities. There were shipped from Middleport and Gasport last season about 8000 barrels at an average price of $1.87 per barrel, amounting to $14,960; and Niagara County onions are quoted in the New York markets, and are shipped to Philadelphia, Boston, Chicago, Milwaukee, and many other of our large cities. It is estimated that there are at present stored in cellars for next year's planting, 5350 bushels of seed, and, so far as can be learned, every bushel of this seed, and all the onions of this locality ever sold—which is not less than 80,000 barrels, and amounting to not less than $175,000—is the direct increase from the half-bushel of seed planted by Mr. Stewart thirty years ago. The territory devoted to this business at present is confined almost exclusively to land along the Ridge road, in the town of Hartland and western edge of Ridgeway—about 75 acres in all.

The questions which probably interest you most are—"How is it done?" and, "Does it pay?" I know of no better way to answer the first than to give my own experience, which covers a period of 12 years, and being, perhaps, about an average as to quantity grown, and also as to success, it would be a fair basis from which to draw conclusions. I have stored in my cellar at present 125 bushels of seed, which I shall commence trimming by cutting off the tops and roots, breaking apart the clusters and sorting into three sizes. As soon as the frost is out and the ground in condition to work, it will be fitted by harrowing and rolling until the soil is well packed and pulverized, and made fine to a depth of about 3 inches. Having been plowed in the fall it will not be necessary to plow again in the spring, unless I should want to plow under manure, and that had best be done in the fall. I mark out the ground with a marker drawn by hand in straight rows 18 inches apart, and about 1 inch deep. I am now ready to plant, which is done by pressing the seed firmly in the row, roots downward, about 2½ or 3 inches apart. The seed is covered by throwing a light furrow on the rows with the plow attachment to the Planet Jr. hand-cultivator. The rows are then rolled down with a hand-roller. The different sizes of seed are planted by themselves. The large seed, which grow the clusters, ripen earlier than the smaller sizes, and, by being planted each size by itself, I can begin harvesting ten days earlier than though they were mixed. Besides, the universal rule that "the strong prey upon the weak" asserts itself with special force in the growth of the onion—in other words, plant a small, weak onion between two large ones, and the large ones will at once reach out and appropriate to their own private use all the available plant-food within reach, and grow and thrive, utterly regardless of the needs of their hungry little neighbor, who, for want of its share of plant-food, matures at best only into a little dwarf. I do not know whether the onion learned this trait of the human species or *vice versa;* they both possess it, however, in about the same degree. As soon as the onions are up—which in favorable weather will be in about two weeks — the hand-cultivator is started, running twice in each row as close to the onions as possible. (A careful man soon becomes expert with the cultivator; last season a hoe was not used in my beds.) The onions should be cultivated as often as every ten days until the tops get so large there is no open space between the rows. If the cultivating is thoroughly done, I find it necessary to weed them only once, which is done just before the tops get too large to work among. I hire help enough to plant and weed them in as short a time as possible. It is essential to get them planted very early, so they will ripen in time for the early market. My onions (two acres) were all planted in a day and a half, and weeded in one day.

Harvesting is begun by pulling the onions, throwing 12 rows of onions into one winrow. Those large enough to barrel are now topped and left on the ground to dry or cure, which, if they are well ripened, will not take more than a day or two. They are then secured by rubbing together on the ground until they are clean and bright. Now they are ready to barrel, care being taken not to put them in barrel while they are damp. The seed or small onions are left lying on the ground until they are thoroughly cured and the sap or juice entirely dried out of the stem. They are then picked up, with the tops left on, in crates with slat bottoms, holding about three pecks each, and put in open sheds or some cool, airy place until hard freezing weather, when they are put in the cellars, and we are ready to figure our gain or loss on the crop.

This brings us to the question, "Does it pay?" in answer to which I have itemized statements from three growers engaged in this business, and who may be considered about an average in success, which I will here present, and which will enable you to judge for yourselves whether it pays. In these statements no account is taken of interest on land or value of barn manure used, but I will say it is about the same as though the land were prepared for a first-class yield of potatoes; neither is interest on capital invested in seed considered, as the seed grows along with crop, and generally increases each year more than 6 per cent, which would offset the 6-per-cent interest on the investment.

NO. 1—ONE AND A HALF ACRES.

rimming 100 bush. seed	$12 50	
reparing ground	3 00	
lanting	10 00	
ultivating and weeding	27 50	
Harvesting	26 00	
Paid for 201 barrels at 22c	44 22	
Marketing	12 50	
Gathering seed	3 75	
Paid for ½ ton phosphate	12 50	
Total expense		$151 97
Sold 201 barrels onions at $2.00		402 00
Balance after expense		$250 03
Profit per acre		166 68

NO. 2—SEVEN ACRES.

Trimming seed	$63 12	
Preparing ground	25 00	
Planting	62 53	
Cultivating	32 00	
Weeding	38 94	
Harvesting	127 55	
Phosphate	25 00	
725 barrels at 22c	159 50	
Total expense		$ 533 64
Sold 725 barrels at $2.00		1450 00
Balance after expense		916 36
Profit per acre		130 90

NO. 3—TWO ACRES.

Trimming seed	$12 00	
Preparing ground	10 00	
Planting	19 43	
Cultivating	12 50	
Weeding	8 89	
Harvesting	28 52	
Bought 301 barrels	66 22	
Drawing to market	9 50	
Gathering seed	6 25	
Bought 1500 lbs. phosphate	18 00	
Total expense		$ 191 31
Sold 301 barrels onions at $2.00		602 00
Balance after expense		$ 410 69
Profit per acre		205 34½

SUMMARY.

Total acres in cultivation, 10½.

Total expenses		$ 876 92
Total sales		2454 00
Total balance after expense		$1577 08
Profit per acre		150 19

The yield and prices given above being no higher than the average for the past ten years, these statements may safely be considered a fair answer to the question, "Does it pay?"

The soil best adapted to the growing of onions, in my judgment, is a sandy loam that holds moisture in continued hot, dry weather; if the soil gets too hot and dry, the onions are liable to burn It must be free from surface water, or flooding in rainy weather, as a few hours' hot sun on onions covered with water will surely scald them and ruin the crop. I believe the ground should be plowed in the fall, and what manure is intended to be used should be then turned under, and, in the spring, work the ground on top, drilling what fertilizer is used with a grain-drill, and the soil rolled and harrowed until it is thoroughly pulverized and made very fine three inches deep. It is not a good plan to manure on top with coarse manure, as it hinders very much in planting and cultivating.

Onions may be raised on the same ground year after year, if the fertility of the soil is kept up by a liberal supply of barnyard manure and phosphate. I know a field upon which onions have been grown every year for more than 25 years, and last season's yield was a good average. But recently I have adopted a system which I think far better. Every two years I change my onion ground, plowing under a heavy growth of clover. Every tiller of the soil understands the benefits of a rotation of crops; also of plowing under clover, good results of which manifest themselves especially in onion culture. It not only fertilizes the soil, but it will hold moisture better, and rank clover is a great agent in freeing the land from weeds. I don't have half the trouble in keeping the crop clean from weeds the first season after plowing under the clover. After harvesting the crop next season, I intend sowing the field to wheat, or to barley in the spring following, and seeding to clover. I mow the first crop of clover, and plow under the second growth, which on land in a high state of fertility will be heavy.

If I were to give advice to any one thinking of starting in the business, I should say, buy but a few bushels of seed, begin in a small way, and let your experience and business grow along together. I have known failures by starting in on too large a scale. There are several things to learn before success is assured. When I see a man start out without any knowledge of the business, and buy a large amount of seed, I keep an eye on him, for the chances are that in about two years he will be disgusted with the business, and it is a first-rate place to go to buy seed cheap. I began with 2½ bushels, and kept planting all I raised until I had enough, so that my first sale was 225 barrels. Had I started in by buying 100 or 200 bushels of seed, the chances are that I would have been out of the business long ago, and no one would have thought of asking me to read an article on "onion-growing" here to-day.

A person, to succeed, must have soil adapted to the growth of the onion, and a cool, dry place to winter his seed. The seed ought not to freeze, but slight freezing is better than too much heat. He must not expect to raise a profitable crop of onions and a heavy crop of *weeds* on the same ground at the same time. Weeds are the eternal enemy of the onion-grower, and he should be constantly on the war-path with every implement of destruction and death he can invent. Weeds grow in wet and dry weather. They work nights and Sundays and Fourth of July; they are especially active and put in their "best licks" while we are gone a-fishing or to the circus or horse-race, and what advantage they gain from you in one day it will take three to get back. Every weed should be plowed under immediately after the crop is harvested, and the ground cultivated as often as they make their appearance.

If you are growing onions to any considerable extent, do not be afraid to hire help to plant and weed them as quickly as possible. It will be cheaper and more satisfactory in the end. I often see as many as twenty men and boys in the field at a time during planting and weeding. When onions are ready to weed, be ready to do it with all the good help you can get. Weeds grow very fast at this time of year, and you will have lots of other work to do; but the onions *must* be weeded; and if you try to do it with your ordinary force of help you will probably be running a mowing-machine of some kind over the field before you can find what you did with $400 or $500 worth of seed in planting time. Boys can plant and weed onions; but in my opinion good reliable men, paid good wages, are the cheapest and most satisfactory help a farmer can get.

The question may be asked: "How much seed does it take to plant an acre?" To this I would reply, it depends entirely on the size of the seed. I have seen seed so small that it could be done with 15 bushels; and I have planted it so large that it would require over 300. I should think the medium would be, perhaps, about 75 bushels per acre.

While I have known many failures in men trying to raise onions, I know of no branch of farming that will pay better if the soil and all the conditions are favorable, and a fair degree of industry, economy, and intelligence is applied.

MONEY IN ONIONS.

Editor Gleanings:—I have noticed with much interest your efforts to collect information in regard to profitable onion culture. This is a subject in which I have long been interested, having been experimenting continuously for twenty years. I am still learning; but being more familiar with the road which leads to success and profit than some of your readers, I will put up a few finger-boards which, if followed, will keep even a novice from going astray:

First and most important is the strain of seed used; for if the seed is not right it matters not what kind of treatment follows; failure is certain. A good crop can not be grown from inferior seed.

Second, get them to growing just as early in season as the weather will permit. No frosts are liable to occur which will injure them after the weather is warm enough to start them. Every plant has its season, and it is hard to make them grow successfully out of season unless placed under glass where the climate can readily be changed and controlled. This is noticeable in the case of our various garden-weeds. They come along in crops in regular succession, as the soil and climate become adapted to their requirements; and it will be found about as difficult to make an onion-plant thrive in July, August, and September, as it will to make purseley grow in April. Onions will not develop late in season after the weather becomes hot and soil dry. With exactly the same seed, soil, and care, I have known a delay of two weeks in planting to cause almost a total failure in the crop, while the first planted was a grand success. I consider this fact one of the chief causes of success by the "New Onion Culture" method of sowing the seed under glass and transplanting the plants, although special attention was not called to the great importance of getting them started early, by the author of that system, that I remember. If the plants are set in the open ground as early as the soil can be worked they are given a start which enables them to form the bulbs in season, while the climate and soil are congenial to their fullest development. In my opinion, nothing is gained by this system if you wait until late in season before sowing your seed and transplanting your plants.

Third. If you have been fortunate in securing a correct strain of seed, and have started them in season, see that you keep the surface of the soil continually broken or stirred, never allowing it to remain crusted over, because the plants will not make any headway while the ground is in this condition, and in consequence you are losing valuable time which can not be made up, for, as above shown, one day now is worth a week of time later on.

Fourth. Keep the plot clean of weeds. Weeds are natural enemies to your onion-plants. They are thieves and robbers. They send their longer roots down and steal away the moisture which is necessary to the development of the onion. If very weedy, although they have an early start they are but little the better for it, as the weeds make the bed as hard and dry and uncongenial as it would be a month later, on account of the change in season.

Fifth. In cultivating and hoeing, never throw the soil against the bulbs, but always away from them. The large handsome bulbs always grow *on* the ground, and not *in* it.

Sixth. Never use stable manure or hen manure on the onion-plot just before putting out the crop. If you do, the weed seeds you sow with it will cause you more trouble and expense than the manuring will benefit you. Better take ground which was heavily manured the previous season for some other crop, and then depend upon commercial manures for starting the onions. Sow these special fertilizers broadcast, and harrow them in. You can then make a heavy application without danger of injuring onion seeds or young sprouts.

If you think the soil lacks fertility after the crop is well started and past the stage of finger-weeding, a compost of hen manure may be sown broadcast over the surface, with excellent results. The rains will then wash it in, and the wheel-hoes will destroy the resulting weeds as fast as they germinate.

Now a word about varieties. For transplanting by the Greiner method, nothing suits us better than the true Prizetaker; but we can not depend upon the open market for the seed, and steer clear of disappointment. We now have it grown by private growers so we *know* what we are using. For sowing in open ground by the ordinary method, we think the true Yellow Globe Danvers is as good as any. In transplanting we make the rows 12 inches apart, and set the plants four inches apart in the row. One acre will thus take 130.000 plants, and it is possible to make them average half a pound each, which is over 1000 bushels, and at the time of year at which they mature they should net the grower a dollar a bushel.

If we sow the seed where the crop is to grow, by the usual method, we much prefer to keep them in hills one foot apart each way, leaving from six to ten plants in a hill. The hand work in weeding is very much less than where the plants are scattered in a continuous row. In this manner small plots may readily be planted by hand, marking the ground both ways with lines 12 inches apart, and placing a pinch of seed with the thumb and finger at each intersection. The Planet Jr. people have recently placed a hill-dropping drill on the market, for this purpose. It is really surprising to see what a hill of onions will grow by this method, wedging and crowding themselves in until some are actually raised several inches from the ground.

This season we sowed about an acre thickly in drills for the purpose of producing sets to keep over for spring planting, but did not use quite enough seed, consequently many of them grew too large for sets, yet small for market onions. These did not net us in market, late in season, over 40 cts. per bushel, while large bulbs, marketed a month earlier, readily brought $1.10. This illustrates the difference between good and poor management, and emphasizes the importance of our rule number two, above stated. ISAAC F. TILLINGHAST.

La Plume, Pa., Jan. 15.

[Thanks, friend T. I believe I can fully indorse every point you make—that is, so far as my experience goes with onions, unless it is that I have not as yet had very much success with commercial fertilizers.]

CHIVES.

Mr. Root:—I send you some chives by mail to-day. The Germans use them for borders around beds in the garden, to hold the dirt. They are very ornamental when in bloom, and very much resemble a bed of pinks. They are used with lettuce and in soups, about the same as garlic, but are much milder in flavor. The bees swarm over the blossoms when in bloom, but I fear the honey would not be of very high quality. You ask in a late number of GLEANINGS if it is an onion. I do not know. However, it must be related to the onion.

Linten, Ind., Jan. 10. JOSIAH GILLILAND.

[Thanks for your suggestion, friend G. Since I called for information about chives, I notice that a number of our seed catalogues advertise them.]

GARDENING IN THE MIDDLE OF FEBRUARY.

If you have glass. you can do a great lot in the way of gardening this month. Early beets and early cabbage should be sown at once; also cauliflower, celery, corn salad, cress, lettuce, onions for transplanting, and onion-sets; American Wonder peas, peppers; radishes, Scarlet Globe and Early Frame; spinach and tomatoes. If you have no glass you can make a hot-bed and cover it with cotton cloth, on the plan given in the tomato book. The great trouble with the cloth is from the heavy snows; but if your rafters support the cloth, say every 3 feet, and you sew curtain-rings to the ends, to be hooked over nails, the cloth will stand a considerable fall of snow. Fastening the ends is an excellent thing to prevent cold winds from flopping the cloth. Better not try any other way of using cloth than the plan given in the tomato book. It must be made to roll up on a heavy pole, or else the wind will make havoc. Cloth fastened to frames is only a bother and disappointment. The wind will blow your work all to pieces until you will wish you had never thought of gardening.

GARDENING IN THE OPEN AIR IN FEBRUARY.

If you feel like it, and wish to get ahead, you can often do considerable without any cloth or frames. Select a warm locality, south of buildings or high board fences; if there are also buildings or high board fences so as to cut off the west wind, without cutting off too much of the sun, it will do better still. Sheltered places between the hills, or close to heavy timber—the latter, I believe, is best of all—will often give a splendid spot for early gardens. The ground needs to be tremendously rich. Ridge it up so as to dry off quickly, and so the snow will melt off quickly; then as soon as the top of the ridge is fine enough to pulverize and rake, work it down smooth. First put in your American Wonder or Alaska peas; next, lettuce and radishes;* a little later, early-cabbage seed; then beets and spinach; onion-sets; potato onions, multiplier onions, etc., can be put in safely on top of these ridges; and, finally, black onion seed. Sometimes these things will come up and afterward be injured by frost, without protection. But this rarely happens. Such stuff will stand ever so much more in the early spring than it will in the fall. Somehow it seems to know that warm days are ahead.

Since apples are so scarce, there is going to be an unusual inducement for starting pieplant; and this will grow as well, or even better, in a dark cellar than in a light place. It will grow slowly in almost any ordinary cellar; but if there is a chimney that is just slightly warm, down near the ground, or even if there is a cooking-stove right on the floor *above*, it will give you an excellent chance to start rhubarb if the bed be made on the cellar bottom right under the cooking-stove. Take up great big roots, dirt and all, any time when the ground is not frozen. Pack them close together in a bed on the cellar-bottom. Fill in around them with damp manure or rich dirt, and have a few inches of dirt right over the crowns. Rhubarb-roots will make a start, toward spring, with the least bit of encouragement. You can get early asparagus in the same way, and we get 40 cts. per lb. for all we can produce in this way. Pieplant ought to bring half as much this season.

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*I have had lettuce and radishes come up right in the open ground, in the month of February, without any protection whatever.

SPECIAL NOTICES
FROM
BUSINESS MANAGER

PLANET JR. CULTIVATORS.

We have a supply of 1894 catalogues of Planet Jr. implements, which we shall be pleased to mail, on request, to those interested, together with our net price sheet, giving prices at which we can supply these goods, and ship direct from factory in Philadelphia, Pa.

SWEET (OR BOKHARA) CLOVER SEED.

We call the attention of our readers to the article in last number, on sweet clover, by H. R. Boardman, one of Ohio's leading bee-keepers and honey-producers. We have secured from Mr. Boardman a choice lot of seed of this clover he finds so valuable not only as a pasture for bees, but for stock also. The seed is hulled, and of extra fine quality. We offer it at 25c per lb., postpaid; by freight or express with other goods, 18c per lb.; 10 lbs., $1.50; 25 lbs. or more, 12c.

SPECIAL SECTIONS AT SPECIAL PRICES.

In addition to the several lots of special sections listed in this department last issue, we would say that Joseph Nysewander, of Des Moines, Ia., has in stock, of our 1893 manufacture, 100,000 No. 1 white sections, mostly 1⅞, that he will sell at $2.50 per 100 ; also about 30,000 No. 1 cream, 7 to foot and $1\frac{15}{16}$, that he offers at $2.00 per 1000. This is a small stock for that point, and those who wish to avail themselves of these prices must apply early. Polished sections and other goods at our usual prices.

CALIFORNIA WHITE-SAGE HONEY.

If we did not get the car of Mercer's honey for which we were planning, we have samples of a lot equally good, now in Chicago, of which we shall have some in stock here also, very soon. We can furnish it f. o b., either place, in 60-lb. cans, 2 in a case, at 7½c per lb.; in lots of 4 cases or more, at 7c. Samples mailed for 8 cents, to pay for mailing-package and postage. Choice white comb honey, in 1-lb. sections, 100-lb. lots, 15c per lb.; fair, 13c. Extracted clover and basswood honey, in kegs, at 7½c; in 60-lb. cans, 2 in a case, 8c.

WAX ADVANCED 2 CENTS A POUND.

The wax-market has shown a decided improvement in prices, so that we quote an advance of 2c per lb. over the prices which have ruled for several months. Until further notice we will pay 23c cash or 26c in trade for average wax delivered here. Selling price will be 30c for refined wax. We make no advance in price of comb foundation, but, on the contrary, we reduce the price of extra thin surplus foundation 5c per lb., making it only 5c per lb. more than thin surplus, instead of 10c, as formerly. This reduction is made at the suggestion of Chas. Dadant & Son, who make a like reduction.

SPRAY PUMPS AND SPRINKLERS.

Although it is early yet in most places to use spray-pumps, it is not too early for those in need of these implements to be looking about for the best and most efficient pumps at the best prices. We ask your attention to the line we offer, which you will find on the two inside cover pages of this number. The Myers pumps, which we have sold for the past two seasons, are the best pumps on the market at any price, so far as we know; yet the price is much lower than such goods are generally sold at. They have a new can-pump this year, which is very convenient. See pages referred to for further particulars; and if you desire still further particulars, send to us for Myers' eight-page spray-pump circular.

SECONDS IN RUBBER GLOVES.

We have secured 6 doz. of men's sizes (10, 11, and 12) rubber gloves in seconds that we offer, while they last, at half regular price—75c a pair, postpaid. For handling bees, and most purposes where such gloves are used, they will answer as well as firsts, being soft and flexible new goods, tan color, with slight defects, such as blisters, etc.

TEN PER CENT DISCOUNT ON PERFORATED ZINC.

After our list of prices was made up for this year we received notice of a reduction in the price of sheet zinc. Instead of making any change in list prices we will, until further notice, give to all customers 10 per cent discount from our list prices on our make of perforated zinc, in sheets and strips; also on all honey-boards, as listed on page 13 of our catalogue.

PRICES TO DEALERS AND SPECIAL CATALOGUES.

We have been delayed in mailing our terms to dealers till just before this number is mailed. If any of our readers are dealers in bee-keepers' supplies, and do not receive terms from us by the time they get this, or soon after, we shall be pleased to hear from them. If interested we shall be pleased to send you samples of our polished sections and comb foundation; also our special dealers' catalogue complete, ready for your use by printing your name on the cover.

NEW MACHINERY FOR MAKING LARGE EXTRACTORS.

In order to facilitate the manufacture of large 4 and 6 frame honey-extractors, so many of which seem to be required, we have purchased about $200 worth of large tinners' machines, and are now equipped for making large cans in the neatest and most approved manner. Bear in mind, in this connection, that we secured on the Cowan extractor the award honorable at the World's Columbian Exposition, and, I believe, the only award given to a honey-extractor.

HONEY MARKET.

The hard times are having their depressing effect on the honey market, as well as in other lines. We are daily in receipt of offers from parties wishing us to take their honey. Some are becoming dissatisfied with the slow returns on honey sent on consignment to commission men, and desire to place it elsewhere. From all reports received, almost all the markets seems to be dull and demand light. This seems to be due to the fact that honey is more or less a luxury, and, during the hard times we have been having, is bought more sparingly than it is in better times. We hope, in the interest of all parties, for an improvement in general business.

EXTRA POLISHED SECTIONS.

Orders for these sections come at such a pace that we are unable as yet to get much stock ahead for the time not far distant when the demand is more lively and orders more numerous. We are stocking quite a number of dealers, some of whom have heretofore handled other makes. We consider this the best evidence of the superiority of our goods, notwithstanding the claims which some make regarding their own. One other thing regarding the way our sections are put up is worth considering. We use a slatted crate, similar to our bushel box, but holding about 1⅓ bushels level full, which is worth 25 cents about almost any home, for handling and storing roots and vegetables. A package of 1000 regular 1-lb. sections, 4¼x1⅞, ready for shipment, weighs just 60 lbs., which is 20 lbs. less than they used to be several years ago. This reduction in weight effects quite a saving in freight, especially on long-distance shipments.

ROOT'S HOME REPAIRING OUTFIT.

We call the attention of our readers to the advertisement of this outfit in another column. It has been entirely remodeled, and is now offered in three combinations (see advertisement). In country districts, removed from repair shops, there ought to be one of these outfits in every neighborhood, if not in every home; and even in towns and villages you will effect quite a saving in repair-bills, as well as furnishing the boys with useful employment. We desire to say, in this connection, that the firm of Root Bros. who make these outfits have no connection, except in a business way, with A. I. Root, and are not even relatives. We say this because a good many seem to confuse the two, thinking it is all in the same business, but under separate names. We will say further, that Root Bros. are the originators of the Household Repairing Outfit, and it now has numerous imitations. They did not get their outfit patented or copyrighted, and hence have no legal grounds for action against their imitators. Being the originators they have moral grounds to support and patronage, for the other fellows have stolen their idea just as truly as though they had had it protected by a patent or copyright. As we furnish Root Bros. with a good deal of material, we like to take pay in trade; we can, therefore, make the same prices, both at retail and to the agents, that the manufacturers do. We shall be pleased to send circular, with full description; also terms to agents.

HARD-TIME PRICES.

We receive quite a number of letters from customers asking for lower prices on our goods, in view of the hard times and lower prices that are ruling in many lines of goods at the present time. We regret that we can not accede to these requests, for various reasons. In the first place, the margin on our goods is always small If it were as large as it has been in some other lines we could better afford a reduction. The material entering into the manufacture of our goods has not declined any; and whenever it has we have made a corresponding reduction in price, as in the case of zinc in this issue. Lumber, which is the chief thing used in hives, etc., has advanced in price rather than declined; yet we have made no advance in our price, but work on a little smaller margin. The quality of our goods has been so much improved during the past year or two that, at the same price, they are worth much more in many cases than they were several years ago. Taking all things into consideration we are already making hardtime prices.

We could prove, by plenty of testimonials from reliable sources, that no bee-keepers' supplies surpass ours in quality and workmanship; and, notwithstanding the claims of some other manufacturers, we invite a comparison of goods and an impartial judgment.

PREMIUM GEM PEAS.

The peas we sold last season for American Wonders are no doubt Premium Gems, although we did not discover it till the present year; but the pea gave such good satisfaction nobody has as yet asked for damages. If any of our readers would still like some of the same kind they had last year, they can have them for half-pint, 5c; peck, $1.00; bushel, $3.50 This, you will notice, is just half the price of Ameri can Wonders at the present time. If wanted by mail, add at the rate of 15c per quart for postage.

ONION SEED $1.00 PER LB. DELIVERED FREE AT YOUR POSTOFFICE.

We have the new onion seed, mentioned on page 111, in stock, and it looks very fair, but we have not had time to give it a test yet, I have no doubt it wil give good satisfaction. The kinds offered at this very low price are Extra Early Red, Large Red Wethersfield, and Yellow Globe Danvers. Price 15 cts. per oz.; 40 cts. per ¼ lb.; $1.10 per lb., or 10 lbs for $10.00. And the above low prices also include delivery at your nearest postoffice. The 10 lbs. may be made up of one kind or all kinds, as you choose.

COLD-FRAME CABBAGE AND LETTUCE PLANTS.

We have splendid cold-frame Wakefield cabbage-plants—the best we ever had in the month of February. Price 10c for 10; 75c per 100. Add 5c for 10 or 25c per 100 if wanted by mail. Nice lettuce-plants. 5c for 10; 40c per 100. If wanted by mail, the postage will be the same as for cabbage-plants. We can send out strawberry-plants the greater part of the time in February, if anybody wants them. For full particulars in regard to all these things, see our new seed-catalogue, which we are watching for chances to mail to anybody who wants one. Please notice our very low prices on Egyptian onion-sets and white multiplier onions.

LIVINGSTON'S BUCKEYE STATE TOMATO.

We did not intend to introduce this tomato into our list when our catalogue was put out; but the boys who gathered the tomatoes last year insisted so strongly that the Buckeye State is away ahead of anything else ever offered in the way of a large tomato, we have planted a large lot of seeds already; and if we teach what we practice we ought in justice to offer it for sale. The plant is a wonderfully strong and healthy grower. The tomatoes are as large as the Ignotum or Mikado, and as handsome as the Beauty. In fact, I do not believe I ever saw a bad-shaped one; and even though they are so large, there seem to be about as many to a vine as of any other kind. The only fault we have ever heard in regard to it is, that it is rather soft for shipping long distances. As ours are carried direct to our customers as soon as they are picked, this does not matter much for our trade. I would, however, recommend that tomatoes be sold in baskets holding not more that a peck; and for our fancy grade we use only new clean *half-peck* baskets. I think every one of our readers should have at least a 5-cent packet of Buckeye State tomato seed. As it is quite new the prices are necessarily rather high. Per ⅛ oz., 30 cts.; ounce, 50 cts.; ¼ lb., $1.60; 1 lb., $5.25. All postpaid.

EARLY RUBY TOMATO.

Oh dear me! I don't see but we shall have to put still another tomato in our list. Last season we had some choice stock seed of Early Ruby, saved by Christian Weckesser, of Niagara Falls, N. Y., and it was so much superior to the Early Ruby that we had of Peter Henderson that I gave a favorable report on it, and now orders are coming in for the seeds. We did quite a large business in selling extra early plants last season. We put them out in plant-beds with the glass pretty high up from the soil, placing them about 7 inches apart, and the nice little plants actually blossomed right in the seed-bed. Yes, some of them even had small green tomatoes on before they were transplanted. We set them out n the field with the tomatoes on, many of them in full bloom, and they went right along and produced not only the earliest tomatoes, but they were of very much better shape than any Early Rubies we ever had before. We have succeeded in getting from friend Weckesser just 3 lbs. of the same kind of seed; and you can have it, while it lasts, at 5c a packet, or 20c an ounce. We are going to plant a good-sized bed ourselves, this 12th day of February, n that little greenhouse across the way.

GREENHOUSE CONSTRUCTION.

This is a new book just from the press, by Prof. Taft, and published by the O. Judd Co. There are 208 pages and ever so many pictures—yes, there are over 100, and I think the book will save many times ts cost to any one who has very much to do with greenhouses, hot-beds, and cold-frames. Prof. Taft was appointed by the Michigan Agricultural College to superintend building some greenhouses for expermental work, and he has also had years of experience in this line elsewhere. As nearly as we can see, the book covers every thing up to the present time. For instance, the use of the putty-bulb has been a big step over the old-fashioned way of setting glass. Well, this book tells us that, by tying a little camel-hair pencil to the nozzle of the putty-bulb, this pencil or brush will make the liquid putty go down into the joint and smooth it down, making a much better job. The different ways of setting the glass are fully considered, and illustrated with numerous excellent cuts. The matter of heating by hot water and steam is thoroughly gone over. The angle at which the glass should be placed to the sun, for the different purposes for which greenhouses are used, is also made very plain. There is not much said about the matter of warming houses and hot-beds by condensed steam; but I do find just the following sentence bearing on the subject. After describing the plan of having a 1¼-inch steam-pipe carried inside of a 4-inch drain tile, he adds: "When exhaust steam is at hand, it can be used without the steam-pipe by merely discharging it into the tile." It seems to me the above is giving but very little space to a matter which promises to be of much importance. You may remember I have considered the subject of supporting a family on a quarter of an acre by having this quarter-acre covered with glass—that is, cold-frames and sash. A diagram of the same arrangement is given in the new book. Some of the friends may think we are having a good many books devoted to this matter of gardening under glass. Greiner's book, however, was written by a practical gardener, and deals largely with the crops that are to be raised under glass. This book, however, treats the matter mostly from a scientific point of view—tells how the most effective houses can be built for the different purposes for which they are desired; and it gives clear and plain reasons for its suggestions. I consider the book a valuable contribution to our present literature. The price is $1.50. We can mail it from here if desired.

OUR CHEAP SPECTACLES AND EYE-GLASSES.

For a long time I have been thinking I must make mention of these little comforts to old age—especially the eye-glasses. I am getting now to where an eye-glass is almost as much a necessity as the air I breathe. May be that is a little extravagant, after all; but, never mind. When I am around the factory, going through the office, or even the greenhouses, unless I can have a pencil and glasses at my fingers' ends I am like a fish out of water. In fact, I can not do any thing; and nothing wears on my nerves more than to feel in every one of my pockets for either pencil or glasses, and not find any; and, therefore, I get a nice pencil and cut it into four pieces, and put a piece in each pocket. Then I have cheap ten-cent eye-glasses—enough so I can have a pair in almost every pocket. Sometimes they all get into one pocket in a heap; and then if I throw off my overcoat I sometimes find myself down in the greenhouse, without any glasses, and my overcoat containing them all upstairs, hanging on its peg. By the way, the handiest place to me, for both pencil and glasses, is my right-hand vest pocket—that is, in the summer time, when my coat is off. When my coat is on and buttoned up, the next best place is the small right-hand pocket in my coat; with the overcoat on, I use the same pocket in the overcoat, the one often called the "ticket-pocket." Thus equipped I get along pretty well. I can not afford to be hampered with a case for an eye-glass, because it takes too much of my time. As a consequence, the glasses get scratched after a while, especially when I am out in the garden and get gravel in my pocket with the glasses. But as the nose-glasses I use cost only 10 cts., it is much cheaper to get a new pair often than to fuss with cases.

Now in regard to the quality of these ten-cent glasses. I have some gold-bowed ones for Sunday, that cost between five and ten dollars; but really I do not find them to be much if any better than the ten-cent ones I am using while I dictate this. It seems to me it is a shame to keep the prices up on a thing that needs to be so constantly used, by rich and poor alike, as nose-glasses and spectacles. We buy them in large lots, so they cost us only from 6 to 8 cts. a pair; and I am sure that dealers might do nicely in selling them at 10 cts , as we do. If they can not do that, let them charge 15. When I am away from home, and want a cheap nose-glass because mine got left, I always have to pay 25 cts., and sometimes 40 or 50. Why do not more people go into business, with such a desire to do good, and accommodate, that they can afford to work for low prices? My opinion is, they would make more in the end. Here is what a good friend away off in California has to say in regard to our cheap spectacles:

FRIEND ROOT: I should like to confirm your statement, made some time ago, as to the value of those 10 cent glasses. I broke mine, and it would cost 25 or 35 cts. to get them mended. A new pair could not be had here for less than two dollars, so our jeweler told me. I concluded to write to you for a pair each of 10 and 25 cent glasses of different numbers. They soon came, and the 10 cent ones were exactly right No. 16, the others had no number, and the paper has to come nearer, but they will do. Now, I have, during the past ten years, had glasses of all kinds and prices, up to ten dollars a set, and I can not see but these are as good as the best. This is the second night in use on fine print.

Los Gatos, Cal., Oct. 22. ISAAC B. RUMFORD.

Ernest here suggests that, if you would save your eyes, you must have a good clear light. Every little while I feel like shaking people because they will sit down by a dirty lamp, with a greasy, dusty chimney, and without any cheap shade at all to throw the light and concentrate it on the print, and thus undertake to read. You may remember what I said about getting a nice bright clean lantern when I was off in the night, on the way to a temperance meeting. Well, it does seem to me as if I could pick out a Christian home by simply getting a glimpse of the lamp and lamp-chimney that light up said home.

By some error our nose-glasses (which *I* use altogether) never get into our catalogues, although we have had quite a sale on them by noticing them editorially. They are 10 cts. each. If wanted by mail, add 3 cts. additional for packing and postage. If you want a case to put them in, which is by far the better way when they are to be sent by mail, add 5 cts. more for the case. For prices on specs, both wholesale and retail, see our regular catalogue, 10 and 25 cent counters.

GOLDEN QUEENS

From Texas.

My bees can not be surpassed for business, beauty, and gentleness. Safe arrival and satisfaction guaranteed. Untested queens—March, April, and May—$1 each. *150* fine Tested Queens for early orders, $1.50 each. Order early. Send for price list.

J. D. GIVENS, Box 3, Lisbon, Tex.

☞In responding to this advertisement mention GLEANINGS.

A BARGAIN.

25 extra fine S. C. Brown Leghorn cocks for sale at $1.00 each. These birds have been raised the past seaseon from choice stock. Satisfaction guaranteed.

Reference, A. I. Root.

LEININGER BROS., Ft. Jennings, O.

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my *Golden Italians.* They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. ***Sections, $2. per M.*** Dovetailed hives way down.

CHAS. D. DUVALL, Spencerville, Md.

Please mention this paper.

For Sale, 125 Bushels Freeman Potatoes.

Grown from Wm. Henry Maule's seed, at the following prices: two-bushel sack, $4.25; one bu., $2.25; ½ bu., $1.25; 1 peck, 75c; ½ peck, 40c. Would exchange Freemans for a New Model garden seed-drill.

H. O. McELHANY,
Cedar Rapids, Linn Co., Iowa.

TREES AND PLANTS.

UPON our 250 acres of nursery we have every class of hardy Trees and Plants; Fruit, Ornamental, Nut and Flowering. **Mary** and **Henry Ward Beecher** Strawberries and **Lovett's Best** Blackberry are among the most valuable novelties. In our catalogues named below (which are the most complete, comprehensive and elaborate published by any nursery establishment in the world) all are accurately described and **offered at one-half the price of tree agents.**

LOVETT'S GUIDE TO FRUIT CULTURE tells all about fruits, their merits and defects; how to plant, prune, cultivate etc. Richly illustrated. Several colored plates. Price 10c.

LOVETT'S MANUAL OF ORNAMENTAL TREES AND PLANTS is authoritative as well as instructive; a model of excellence in printing and illustration. Gives points and plans for ornamental planting. Price, with colored plates, 15 cents.

Established 40 years. We successfully ship to all parts of the World.

All who order either of the above and name this paper will receive an ounce of Flower Seeds *free.*

J. T. LOVETT CO. LITTLE SILVER, N. J.

In writing advertisers please mention this paper. 3 6db

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

FULL LINE OF

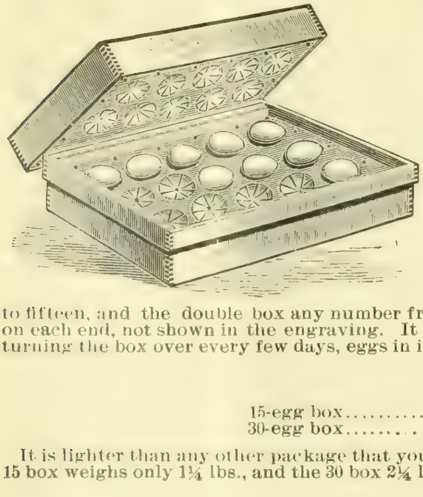
BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

Costellow's Egg-Box.



This is an invention of great value to poultrymen in general, and to those who ship eggs for hatching in particular. The box is complete in itself, nothing in the way of packing being required. It is only necessary to place the eggs in the box, and fasten the cover down; they are securely held in place by light springs, which allow no play in any direction, but which hold them suspended in the center of the box, where they are secure from all jar, thumping, or breakage.

At a recent poultry show in Cleveland, O., one of the boxes was filled with eggs and tossed around the room and thrown to the floor; and, on opening, not an egg was broken.

The springs are so constructed that they will hold with equal security and ease any size of hen's egg. The single box will successfully carry any number of eggs from one to fifteen, and the double box any number from one to thirty. The cover is secured by metal fastenings on each end, not shown in the engraving. It is well adapted to keeping eggs for higher prices, as, by turning the box over every few days, eggs in it will keep sound and good for six months or more.

PRICES.

	Sample.	Per doz.	Per 100.
15-egg box	$ 25	$1 80	$12 50
30-egg box	35	3 00	20 00

It is lighter than any other package that you can use with equal safety, as well as being cheaper. The 15 box weighs only 1¼ lbs., and the 30 box 2¼ lbs.

A. I. ROOT, MEDINA, OHIO.

Root's Goods at Root's Prices.

We have the best shipping-facilities in the Northwest. We can save time and freight by shipping direct on some 40 or more railroads, without change of cars, which saves handling, and goods are much less liable to be broken or smashed.

Root's 1893 No. 1 white sections, 4¼x4¼x7 to foot, 1⅞, and 1$\frac{15}{16}$, at $2.50 per 1000. No. 1 cream, 4¼x¼x1⅞ and 1$\frac{15}{16}$, $2.00 per 1000.

Write for price list and what you want.

H. G. Acklin, 1024 Mississippi St.,
St. Paul, Minn.
Northwestern Agent for A. I. Root's Bee-keepers' Supplies.

VANDERVORT
COMB-FOUNDATION MILLS.
Send for samples and reduced price list.
1tfd **JNO. VANDERVORT, Laceyville, Pa.**

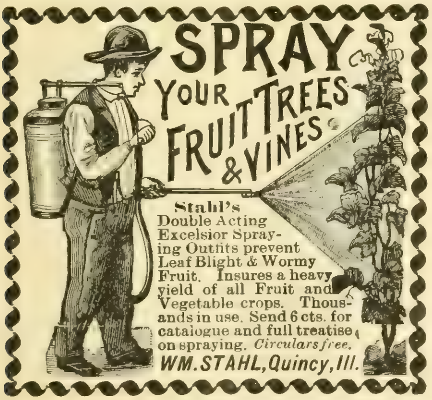
A BARGAIN Collection of **Flower Seeds**

10 Choice Annuals (everybody's favorites), all new fresh seeds, sure to grow and bloom this season.

Pansy, 40 colors and markings; **Phlox**, 20 colors; **Verbena**, 18 colors; **Pinks**, 10 colors; **Petunia**, 10 colors; **Asters**, 12 colors; **Balsam**, 8 colors; **Mignonette Sweet** mixed, **Sweet Peas**, 12 colors and **Sweet Alyssum**.

FOR 12 CENTS and the name and address of two of your friends who grow flowers, I will send, post-paid, the complete collection, one pkt. each of the ten varieties (enough for any ordinary garden.) This is a **BONAFIDE** offer, made to introduce my home grown flower seeds to new customers and which I guarantee to please you or the amount paid refunded, and the seeds given as a present.

Address, **Miss C. H. LIPPINCOTT,**
319 and 323 Sixth Street, South, MINNEAPOLIS, MINN.



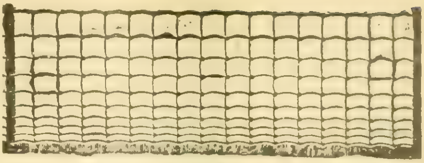
Stahl's Double Acting Excelsior Spraying Outfits prevent Leaf Blight & Wormy Fruit. Insures a heavy yield of all Fruit and Vegetable crops. Thousands in use. Send 6 cts. for catalogue and full treatise on spraying. *Circulars free.*
WM. STAHL, Quincy, Ill.

☞In responding to this advertisement mention GLEANINGS.

Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.

eoitf Please mention this paper



World's Fair comes to "THE PAGE"!

At least the President does when he wants fence. Last month his Manager called on our agent and bought 500 rods. It's now delivered and paid for, at the same price **you** can buy. Plenty of fences "just as good" were offered at **cut rates**, but four years' trial, beats a **Medal** with Hon. Thomas W. Palmer.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

SIX LEADING VARIETIES OF POULTRY. **EGGS FOR HATCHING.**
Orders booked now. Send for descriptive card.
J. S. Mason, Medina, Ohio.

BEES QUEENS
Smokers, Sections, Comb Foundation, And all Apiairan Supplies cheap. Send for FREE atalogue. **E. T. FLANAGAN, Belleville, Ill.**

BEE SUPPLIES RETAIL AND WHOLESALE

Every thing used in the *Apiary*. Greatest variety and *largest* stock in the West. New catalog, 70 illustrated pages, free.

Discounts to Dealers.

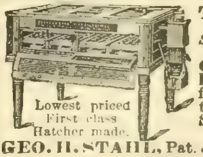
E. KRETCHMER, Red Oak, Ia.

☞In responding to this advertisement mention GLEANINGS.

World's Fair Medal

Awarded my ***Foundation.*** Send for ***free samples.*** Dealers, write for wholesale prices. Root's new ***Polished Sections*** and other goods at his prices. ***Free*** Illustrated Price List of every thing needed in the apiary. **M. H. Hunt.**
Bell Branch, Mich.

HATCH CHICKENS BY STEAM
WITH THE IMPROVED
EXCELSIOR INCUBATOR.



Lowest priced First class Hatcher made.

Thousands in Successful Operation.
SIMPLE, PERFECT, and SELF-REGULATING.
Guaranteed to hatch a **larger percentage** of fertile eggs, at **less cost**, than any other Incubator. Send 6c. for Illus. Catalog. Circulars Free.

GEO. H. STAHL, Pat. & Sole Mfr., Quincy, Ill.

Please mention GLEANINGS. 21 8db

Cash for Beeswax!

Will pay 23c per lb. cash, or 26c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 28c per lb., or 30c for *best selected wax.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio.

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Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange a $30 gold watch for BEES, comb foundation, wax, white extracted honey, or section boxes. J. B. **MASON**, Mechanic Falls, Me.

WANTED.—To exchange bees for an incubator.
D. F. **LASHIER**, Hooper, Broome Co., N. Y.

WANTED.—To exchange peach trees and Abundance plum-trees, for a horse. Address
CEDAR GROVE FARM, North Madison, Ind.
See ad. in another column.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. **GREEN**, Ottawa, Ill.

WANTED.—To exchange chaff hives, 1-lb. sections, foundation, etc., for wax or offers.
F. N. **JOHNSON**, Box 137, Knoxville, Ill.

WANTED.—A few dozen pairs of live quail for breeding the coming season. If you don't know how to trap them, write for directions to
J. S. **CASE**, Colchester, Conn.

WANTED.—To exchange 2 Wilson's $5.00 hand bone-mills, new, for foundation or bee supplies.
J. S. **CASE**, Colchester, Conn.

WANTED.—To exchange large young L. Brahmas, fine as silk, for Indian games or extracted honey. No culls wanted. C. T. **REED**, Greensburg, Pa.

WANTED.—To exchange blackberry-sets, red and black raspberry-plants, $8 per 1000, for beeswax. A. P. **LAWRENCE**, Hickory Corners, Barry Co., Mich.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange nursery stock for thoroughbred poultry eggs; also bee-keepers' supplies. R. A. **LEWIS**, Cherokee, Ia.

WANTED.—Bee-keeper to take charge of 50 swarms of bees; the balance of his time must be put in working in garden and jobbing around the place Must be handy with carpenters' tools, and come well recommended. State whether single or married, how much wages wanted, with and without board. Send full particulars. **JAS. HORRACKS**,
Hyde Park, Dutchess Co., N. Y.

WANTED.—To exchange L. hives, brood-frames, section-cases (finest in the market), sections, comb-foundation machine, groceries, for bees in April and May. Address E. **PETERMAN**,
Sheboygan, Wis.

WANTED.—White Leghorn chicken eggs.
H. **BOKELMANN**, Vernon, W. Va.

WANTED.—To exchange a $125 pneumatic safety bicycle, used only a short time, as good as new, for 1000 lbs. of white-clover or basswood honey. Address **WM. H. McKINLEY**, Black Rock Sta., N. Y.

WANTED.—To exchange Cuthbert raspberry-plants, at 75 cts. per 100, or $5 per 1000, for extracted honey, sections, 3-frame nuclei, or offers.
P. D. **MILLER**, Graysville, Pa.

WANTED.—A brisk, temperate young man that would like to learn about bees and fruit. Bee-keeping and fruit-growing go well together.
S. I. **FREEBORN**, Richland Center, Wis.

WANTED.—Situation in apiary; 15 years' experience; capable of taking charge of apiary. Address R. T. **SMITH**, 4804 St. Lawrence Ave., Chicago.

WANTED.—Small second-hand planer, cheap for cash. D. G. **WEBSTER**, Blaine, Ill.

WANTED.—To exchange for offers, bees, hives, extractors, etc. **ALBERT GALLOWAY**,
Kirkwood, Ill.

WANTED.—To exchange Yaggy's Geographical Cabinet No. 6½, in heavy canvas case. Publishers' price, $45. Will take $25 in sections, fdn., honey, or offers. E. E. **SLINGERLAND**, Alba, Brad. Co., Pa.

WANTED.—To exchange bees, queens, S. C. B. Leghorn and B. P. Rock eggs and poultry, for foundation, sections, or offers.
CHAS. H. THIES, Steeleville, Ill.

WANTED.—A boy of 15 to 18, having some experience in gardening, or wanting to learn, with a disposition to make his services indispensable at home, in the office, greenhouse, field, or berry-patch. Must have good habits and come well recommended.
CHRISTIAN WECKESSER, Seedsman,
Niagara Falls, N. Y.

WANTED.—To buy bees; Texas or Colorado preferred. E. **SANDFORD**, Nokomis, Ill.

THE BEST

is what I mean to give my patrons. Drones from selected queens. Breeders are carefully selected from the best. Personal attention and assiduous care given to rearing queens that they may be of the highest type.

Untested, $1.00; after May, 75c: March and April, 6 for $4 75; dozen for $8.50. May and June, 6 for $4.00; dozen, $7.50. Later, 6 for $3.50; dozen, $6.50. Tested, 3-banded, $1.25; 3 to 5 banded, $1.50 to $4.00. Send for circular for particulars. Make money orders payable here.

J. B. CASE, Port Orange, Vol. Co., Fla.

☞In responding to this advertisement mention GLEANINGS.

Do Not Order

Until you have written us for prices on the "*Boss*" *One-Piece Section*.

PATENTED JUNE 28 1881

Also D. T. Hives, Shipping-crates, and other supplies.

We have just completed a large addition to our factory, which doubles our floor-room, and therefore we are in better shape than ever to fill orders on short notice. Write for price list.

J. FORNCROOK & CO.,
Watertown, Wis., Jan. 1, 1894. 1-3-5tfd

☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

BUFFALO.—*Honey.*—Honey market is flat; very little moving. Moderate sales of fancy white at 13@14. Choice, 10@11; buckwheat, 9@10. Beeswax, 28@30.
BATTERSON & CO.,
Feb. 19. Buffalo, N. Y.

ST. LOUIS.—*Honey.*—We find conditions unchanged. There is a dearth of buyers. We quote comb, 10@15; extracted, 4@4½; cans, 5½@6. Prime beeswax, 24½@25.
D. G. TUTT GROCER CO.,
Feb. 19. St. Louis, Mo.

CHICAGO.—*Honey.*—The market on comb honey has improved some and we are selling the very best grades at 15c. Lower grades of dark honeys and mixed sell slowly at uncertain prices. Extracted brings 5 6, and 7 cts., according to the quality and flavor. Beeswax, 25c.
R. A. BURNETT & CO.,
Feb. 19. 161 So. Water St., Chicago, Ill.

ALBANY.—*Honey.*—The increased demand for comb honey noted in our last report still continues, and we hope to close out all of our stock by April 1st. Extracted is still in large supply, and the demand not like what we should like to see it at this season of the year. We quote comb honey at 10@13. Extracted, 5@7.
CHAS. MCCULLOCH & CO.,
Feb. 20. 393, 395, 397 Broadway, Albany, N. Y.

KANSAS CITY.—*Honey.*—We quote you No. 1 white 1-lb., 14; No. 2, 12; No. 1 amber, 13; No. 2, 10 Extracted, white, 6¼@7; dark, 5@6. Beeswax, 20@22. Demand for honey only fair; supply good.
HAMBLIN & BEARSS,
Feb. 19. Kansas City, Mo.

CINCINNATI.—*Honey.*—Demand from manufacturers is exceedingly slow for extracted honey. We quote 4@8c on arrival. Demand is fair for choice comb honey at 12@16 in the jobbing way. Beeswax is in good demand at 22@2 for good to choice yellow.
CHAS. F. MUTH & SON,
Feb. 19. Cincinnati, Ohio.

BOSTON.—*Honey.*—Demand for honey is good. Comb honey is in light supply, selling at 13@15 cts. Extracted is selling at 5@7 cts No beeswax on hand.
Feb. 19. BLAKE & RIPLEY,
Boston, Mass.

MILWAUKEE.—*Honey.*—Trade in honey is not very large. Values are easy and supply very fair. It seems the consumption of honey has been dispensed with by many who, in time past, have been buyers and consumers, which very materially affects the demand. We quote white 1-lb. sections, choice, 14@15; fair, 12½@13; broken or dark, nominal. 1 @ 12; extracted, white, in barrels or kegs, 7@7½; dark, 5@6. Beeswax, 20@23.
A. V. BISHOP & CO.,
Feb. 14. Milwaukee, Wis.

KANSAS CITY.—*Honey.*—The demand for both comb and extracted honey has been light all season, but the demand is improving; no change in prices. We quote No. 1 white 1-lb. comb at 14@15; No. 2, 12@13; No. 1 amber, 10@14; No. 2, 10@11. Extracted, 5@7. Beeswax, 20@22.
CLEMONS, MASON & CO.,
Feb. 19. Kansas City, Mo.

DETROIT.—*Honey.*—Choice white comb honey is scarce and continues to sell at 14@15c. Other grades 11@13. Extracted, 7@8. Beeswax firm at 24@25.
M. H. HUNT,
Feb. 19. Bell Branch, Mich

CLEVELAND.—*Honey.*—Market on honey is about the same as usual. Demand is fair at 14; 15c for No. 1 goods. We think there are prospects later on of an advance.
WILLIAMS BROS.,
Feb. 19. 80 & 82 Broadway, Cleveland, O.

No. 1 linn extracted honey, $5.50 per 100 lbs ; $50.00 per 1000 lbs., f. o. b. cars at Ada, Ohio
J. B. MURRAY, Ada, O.

DEAD-RIPE HONEY!—Ripened by the bees all fall. Mostly clover and linn. I will sell 2 cans, 120 lbs., for $8.00. OLIVER FOSTER, Mt. Vernon, Linn Co., Ia.

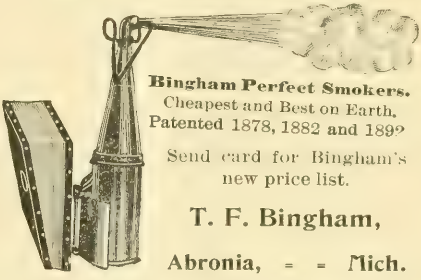
BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

Orange-Blossom Honey.

Superior to *Clover* or *Basswood.* New crop will be harvested about March 25th. My crop will probably amount to *20,000 pounds* or more half *comb honey.* Correspondence from dealers and others who wish to buy outright, or who will make liberal advancements on arrival, solicited.

A. F. Brown,
Glenwood, Volusia Co., Fla.

WHY SEND WAY Down South For Queens? My bee-keeping friends, Northern Italian queens wintered outdoors are more hardy, energetic, and prolific in their season of bee-rearing. Read and think before ordering. Send for price list, and order early. Strawberry-plants of the latest variety cheap.
MRS. OLIVER COLE, Sherburne, Chenango Co., N.Y.
Chenango Valley Apiary. eitf



Bingham Perfect Smokers.
Cheapest and Best on Earth.
Patented 1878, 1882 and 1892

Send card for Bingham's new price list.

T. F. Bingham,
Abronia, = = Mich.

Good ! Good !

Those wishing the finest and best business bees, both for pleasure and profit, should know that Jennie Atchley is headquarters for such queens. I breed both the 3 and 5 banded strains, at the following prices: Untested (March, April, and May), $1.00 each; $5.00 for 6, or $9.00 per dozen. June till October, 75 cts. each; $4.25 for 6, or $8.00 per dozen. I breed my queens in separate yards, and I have as fine Italian bees as there are anywhere. Nuclei and full colonies. I have one straight merchandise rate on bees by express—lowest in U. S. Fine breeders always on hand; 3-banded, $5.00; for straight 5-banded breeders, apply by letter. Also bees by the pound. I guarantee *all* my queens to be good and serviceable, and my fine faultless breeders unexcelled in the world. Safe arrival and satisfaction.

I also have a carload of A. I. Root's Dovetailed hives and Bee-supplies to accommodate my Southern customers Dadant's foundation and Bingham smokers Send for catalogue.

JENNIE ATCHLEY, Beeville, Bee Co., Texas.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher priced ones.

A few young mismated queens, 50 cts. each. Also some hybrids that I traded for; as they run, 25 cts.; selected, 40 cts.; the poor ones will be culled out, ready to send from March 1st to 15th.
J. B. CASE, Port Orange, Fla.

Like Every Editor,

I wish to increase the circulation of my journal. If every bee-keeper in this country were thoroughly acquainted with the REVIEW, my subscription-list would at once be greatly increased. I have in mind a scheme for bringing about this acquaintance. Of some issues of the REVIEW I have as many as 300 copies; of others, 200; of others, 100; and so on down to less than a dozen. Now, if you will allow *me* to pick them out, I will sell these back numbers at two cents a copy. Send me any amount up to $1.00, and I will send you half as many copies as you send me cents, and no two copies alike. Remember that back numbers of the REVIEW are somewhat different from the back numbers of some journals that each number is, to a certain extent, a little book or pamphlet containing the views of leading bee-keepers upon some special topic. Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON, FLINT, MICH.

---

50 WORLD'S FAIR VIEWS, Free,

—AND—

Semi-monthly "Farm and Fireside" 24 Nos.

To every NEW SUBSCRIBER who sends $1.00 for the **WEEKLY AMERICAN BEE JOURNAL** for one year. The 50 Photograpic Views are sure to please you immensely. The Farm and Fireside is the Great Agricultural and Family Journal of America. It is entertaining to every member of the household, and has a circulation of 300,000 copies each issue. The Bee Journal—Well, just send for a FREE SAMPLE COPY giving full particulars and description of the 50 Photographic Views. Address

GEORGE W. YORK & CO., 56 Fifth Avenue, Chicago, Illinois.

☞To New Subscribers—The 50 Views, and "Farm and Fireside" one year, with "Bee Journal" six months—ALL for only 75 cts.

AT THE WORLD'S FAIR

THE PORTER BEE ESCAPE received the **ONLY** award given an escape. Practical bee-keepers everywhere use and recommend it as a great labor-saving implement, and as the best. Circular and testimonials free. Prices:—Each, postpaid, with directions, 20 cts.; per doz., $2.25, *and your money back, if not satisfied.* Order from your dealer, or if more convenient from the manufacturers, **R. & E. C. PORTER, LEWISTOWN, ILL.**

---

13 Carloads of Supplies.

This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially

FOR THE WEST.

Joseph Nysewander, Des Moines, Ia.

Ladies' Fine Shoes. Worth $3. Our Price, $2.

Genuine Kid, Elegant Style, Soft Soles; Easy, Perfect Fitting; Any Style, Lace or Button; Plain Toe or Pat. Tips, Narrow or Broad Toe. Sizes 1 to 8; Widths, C, D, E, and E. E. Send your size, Sure Fit. Sent postpaid on receipt of $2.

C. L. Griesinger,
Medina, O.

P. S.—Your shoes wear splendid.
M. T. WILLIAMS.
Trumansburg, N.Y.

GOLDEN ITALIAN QUEENS

I will have Untested Golden or 5-banded Italian queens, at 75 cts. each; the best of queens. Also Untested Queens from Imported stock, at 75 cts. each. Also Tested Italian Queens raised last season from Imported mother, at 90 cts each in April. Will have untested queens ready to mail May 1st.

W. A. COMPTON,
Lynnville, - - Tennessee.

LAWS'

Italians surely take the *lead.* They are now in every State in the *Union,* and in several *foreign countries.* Nearly 3000 queens sold, and not a dissatisfied customer; if there is, let him speak. Queens *yellow all over.* Fine breeders always on hand; 4 and 5 band, $2.00; straight 5 band, $3.00! Untested, each, $1.00; 6 for $4.50. Satisfaction. Reference, A. I. Root.

W. H. LAWS,
Lavaca, Seb. Co., Ark.

Sections, Bee-Hives, and other Bee-Keepers' Appliances at Bed-rock Prices.

Best of Goods at Lowest Prices.

Write for free, illustrated catalogue and Price List.

G. B. Lewis Co., Watertown, Wis.

Walter S. Pouder,

162 Massachusetts Ave.,
Indianapolis, Indiana.

Supplies, Standard goods; popular prices; Catalogue free.

"Busy Bees," a book telling how to manage them, 10c in stamps; or, free to those sending names of five bee-keepers.

BEE-HIVES. SECTIONS. FOUNDATION. Price List Free.

A Full Line of SUPPLIES for the Bee-keeper.

GEO. RALL, Frenchville, Tremp. Co., Wis.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly
Published by A. I. Root.
$1.00 per Year. Medina Ohio

Vol. XXII. MAR. 1, 1894. No. 5.

STRAY STRAWS
FROM DR. C. C. MILLER.

JENNIE ATCHLEY reports in *A. B. J.* finding laying workers at work in a hive with a superannuated queen.

NEW MEANS for killing skunks are diligently brought forward. Are the poor things to be utterly exterminated?

TO PEEL AN ORANGE. After cutting the rind in six sections, don't commence at the blossom end. Try the stem end.

PHIN'S DICTIONARY of Apiculture has my increased respect. He had largely virgin soil to work on, and he made a good job.

THE LAYENS PLAN, that Doolittle asks about on p. 151, gives the bees in the spring a hive so big they can't fill it, then lets them alone till fall.

SWARMING seems to interest Wisconsin bee-keepers, as the program for State convention shows 5 topics out of 12 relating to it. I'd like to be there.

RAMBLER, can't you get the Californians to make that standard frame just ⅛ inch longer so we can all have the same standard? [Yes, yes. —ED.]

WILDER GRAHAME hits the nail very squarely on the head in that talk about giving swarms a chance to alight conveniently for the bee-keeper (p. 149).

LONGEVITY as a reason for such great difference in the working of two colonies has another advocate in *A. B. J.*, in Chas. H Thies. He gives a strong illustration.

SALT WON'T CURE the bee-paralysis they have in Texas, says L. B. Smith, in *A. B. J.*, and he thinks that disease in the last three years has killed two-thirds of the bees.

"ALL OF GLEANINGS, except the part belonging exclusively to A. I. Root, comes with enlarged print. Quite an improvement," says Mrs. Hallenbeck, in *Progressive*, and even the editor of *Progressive* speaks of the new type.

GALLUP says, *A. B. J.*, queens mailed when just beginning to lay are not injured; and when laying heavily a journey in the mails impairs their prolificness but not their longevity.

HOW MUCH HONEY is used to raise a pound of bees? is a query in *A. B. J.* One man guesses a pound, another 20, and the rest "don't know." Some one ought to find out. [Doctor, suppose *you* try the experiment next summer, and report.—ED.]

FOUNDATION, if sheeted as carefully as for the rolls, can be made just as thin and even on the press as by the rolls, says E. T. Flanagan, in *Progressive*. But he adds that it takes care and skill to do it, and in all that I used I never saw any such.

ERNEST SUGGESTS, p. 165, that a clear light saves the eyes. Right. Not that the quality of the light's better, but there's more of it. And don't forget that you can get more light by being nearer the lamp. At 2 feet the light is four times as strong as at 4 feet.

E. A. DODGE thinks there are enough other insects to fertilize fruit-blossoms without bees. He says, "Take a lantern and visit a plum-orchard about 9 at night, and you will see moths enough to fertilize all the trees in Nebraska in a single night." Do night-moths do that sort of thing?

"WE TRANSFERRED the bees from a wagon-load of box hives a few days ago, and by careful test we found the combs to average, as nearly as we could get at it, 1⅜ inches from center to center."—*Mrs. Atchley, in A. B. J.* Do bees voluntarily build combs as close in cold as in hot climates?

EDITOR YORK is stirring up his readers with the report of a man who regularly retails extracted honey at 24 cts., and H. D. Cutting is selling an extra article of extracted at 16, while plenty common can be had at 7. There's lots in knowing how to sell, and if all extracted was like Cutting's extra, the price would hardly be so low.

R. Wilkins writes, "Bees' eyes not accommodating themselves to strong and weak light seems to account for many of my bees in bright days falling wounded to the ground from bumping their heads against the south side of my white bee-house, as great numbers of them have to fly close by it."

Dr. Jesse Oren, *A. B. J.*, recommends burning sulphur in the cellar a week or so before taking in bees for winter. It helps to keep combs dry, and free from mold, and the family from fever, diphtheria, etc. A heavy dose after taking bees out is a good thing. I've practiced it, and like it much.

A correspondent is deterred from making a fire in his cellar because I said occasional fires didn't work in practice as well as in theory. Please emphasize "occasional." A *constant* fire works better for me. Some will need fire less constantly, some still less, and so on to those who never need any.

Clipping queens has a majority in its favor among those replying in *A. B. J.* Rather strangely, most who favor it see no disadvantages, and the others are equally blind to any advantages. Disadvantages named: Trouble and barbarity of clipping, danger of supersedure or loss of queen. Advantages: Easier to keep age of queen; saves watching, time, care, and labor, at swarming; less danger of losing both swarm and queen.

What preparation of pollen does W. S. Fultz mean on p. 127, that bees can not make and man can? Certainly man doesn't prepare the pollen out in the orchard. And I supposed that the ripe grains of pollen floating through the air, and adhering to various parts of the bee's body, needed no preparation. Surely he can't suppose that the contents of the pollen-basket are meant. [You are quite right, Dr. M. Hadn't thought of that before.—Ed.]

If the practice of rendering combs with acid becomes universal, the quality of the wax will be greatly lowered, and bees will not accept comb foundation made from such wax as readily as when it retains the bee and honey smell.—*C. P. Dadant, in A. B. J.* [We can see no difference, *as we do it.* We use less than a pint of acid for 500 lbs. of wax, and by our plan we recover every particle of the acid. Its specific gravity is so much greater than wax that it settles to the bottom of the water before the wax cools. Chemical tests too show that there is no sulphuric acid left in the wax. Our friend C. P. doubtless alludes to those who use too much acid, or use it improperly. If so, we agree with him.—Ed.]

[You see we have started the footnote feature to Straws. What will the doctor do when he sees we have the "last say"?—Ed.]

GENERAL CORRESPONDENCE

THE CALIFORNIA STATE MEETING.

THE GREATEST BEE-COUNTRY IN THE WORLD; THE DETECTION OF GLUCOSE BY THE TASTE.

By Prof. A. J. Cook.

[On page 145 we have already given a report of the California State Bee-keepers' Association; but this one by Prof. Cook presents new phases of the meeting, that will be no repetition.—Ed.]

Dear Mr. Editor:—I need not tell you that the California State Bee-keepers' Association was a very interesting one. The members are very intelligent, wide-awake men, and there were even more of these present than there were two years ago when you and I met with the Association. The hall in the Chamber of Commerce was crowded from first to last with eager, successful bee-keepers. I think I never attended any convention where the discussions were more interesting. Some of the papers, like the President's Address, and especially the paper by Mr. Woodbury, were of unusual interest. Three topics elicited more consideration than any others, and the points developed will interest the readers of Gleanings: "The Bee-keeping Interest of California; the Relation of Apiculture and Pomology, and the Matter of Marketing." I will endeavor to give you in three brief papers the substance of the discussions in each of these directions.

I stated in substance the following in a paper which I read on the first evening: That I was told by one of the best-informed bee-keepers of Southern California that more than half of the seasons in California are excellent; that he had never had to feed his bees; though one season, before he commenced keeping bees, feeding was necessary to save the bees, and that from 300 to 500 lbs. of honey were often secured from each colony in the apiary; and that in good seasons, when the rain exceeded 15 inches, it was practically impossible to overstock a locality. I asked for exact facts, that we might publish the truth to the world; and if any thing like the above was true, establish the fact that Southern California is the most wonderful bee-locality in the world. The inquiry brought out the records from several of the oldest reliable bee-keepers, when it was found that less than one-third of the seasons for twenty years had been poor; that other years the bees in large apiaries had averaged from 250 to 300 lbs. per colony, and that in most of the poor years the bees had given some surplus, while they had, with the exception of one season, gathered enough to be self-supporting. It also appeared, from ample authority, that, in good seasons, it was almost impossible to overstock a locality. At least, hundreds of colonies had been kept in one apiary, and had gathered 300 lbs. of honey per colony, spring count. This certainly establishes the fact that California is the banner apiarian State of our country, if not the best locality for bees in the world.

The experiment of mixing glucose ½, ⅛, and ¼ with honey, and allowing the bee-keepers' present to taste of each and of pure honey, resulted just as it did in Michigan a year ago when I prepared similar samples. Every one could detect the adulteration. Such adulteration is openly practiced by the dealers in the large cities, and is a rascally fraud. It crowds the market with the spurious article, which is so inferior that it would surely lessen the demand for honey. Such spurious stuff leaves a disagreeable taste in the mouth, that would surely take from me all desire for honey if I were to eat it, even though I did suspect its real nature. California bee-keepers are in earnest, and are bound to secure state and national laws looking to the suppression of this nefarious practice, and they are of one mind regarding the advisability and necessity of seeing that such laws are enforced. Resolutions were passed, and committees appointed, in hopes that speedy legislation, both state and national, may be secured, which will make it very dangerous to prosecute any such calling as that of adulterating honey and selling the product as the genuine article. It was resolved, also, to exclude any person from the society who should engage in such adulteration. Without doubt this is right and wise. Bee-keepers everywhere should unite to strike down this terrible enemy.

Claremont, Cal., Feb. 13.

[Prof. Cook has been very busy for the past year or so preparing to leave his old college at Lansing, Michigan, moving, and finally getting settled in his new home in that land of flowers. He writes us that the climate and people are delightful. He is much pleased with his new work and the opportunities before him. Now that he has got out of his rush, we shall hear from him as before, we hope. The article above is among the first at hand, and we are sure it will be read with pleasure. Observe that he verifies again the position we have taken, that glucose—the commercial article—can be successfully detected by the taste.—Ed.]

THE USE OF BEE-ESCAPES.

F THEIR ADVANTAGES AND DISADVANTAGES IN CALIFORNIA.

By Rambler.

To use or not to use the bee-escape is a question that seems to be causing a little ripple on the otherwise placid surface of the bee-keeping interests. There are not a few that look upon the little tin instrument as an innovation, and openly declare they will have nothing to do with it. This view smacks something of set notions, and, if adopted by all, would shelve many worthy inventions.

My experience with the escape is confined almost wholly to their use in this State, using them here for two seasons; and I would say that my use of them so far hardly fits me to write of their advantages or disadvantages, for I have much to learn yet in their use. There are those who can use two or three escapes two or three times on two or three hives, and then write learnedly of their advantages, leaving out a great many of the hitches and obstacles to entire success. I propose, therefore, in giving my experience, to relate all sides of it so far as it goes, and tell the rest after further experience.

I have used the escape exclusively for obtaining extracted honey. If I were to remove comb honey I think another method would be preferable in this country; still, I would give the escape a thorough trial in that case.

To get rid of the disagreeable labor of brushing off bees, and exposing combs that have just been through the extractor, is a desideratum sought for by all bee-keepers who extract honey; and if the escape will enable us to accomplish it, or even to make the work more pleasant, then we want the little tin instrument.

My experience teaches me that the escape is a useless article unless used in connection with the queen-excluding honey-board. If we do not use the queen-excluder, there will be more or less brood in the extracting-super; and where there is even a small amount of brood, the bees will not leave it; while, if there is much brood and a queen, scarcely a bee will go through the escape.

There is another hitch in the smooth working of the escape: If there are many young bees, even above the queen-excluder, they are not world-wise enough to use the escape, and are found clustered upon two or three combs; just where we do not want them.

My method of manipulation has been to give the queen unlimited room up to the first or even to the middle of May; using *two* extracting-supers, with frames the same size as the brood-combs. If the queen is prolific, not only the brood-chamber but the super above will be well filled with brood; after the first of May the queen-excluder is put to service and placed upon the brood-chamber with the two extracting-supers above. In order to get the queen in the proper place—the brood-chamber—the combs are manipulated; if the outside combs in the brood-chamber have honey and pollen, they are removed; and larval brood from the super is put in their place. If the honey has been coming in freely, it is possible that the second super is well filled with honey, and ready to extract. If the escape is put under this super it works to a charm, except now and then a cluster of the aforesaid young bees; but if the escape is put under the super above the brood-chamber: or if only this super is used, I find that about one queen in six will get above the excluder, and the escape fails to operate. The remedy here is to exercise greater care in rearing large queens.

My plan of manipulation is to take the escapes on the wheelbarrow, about 4 or 5 o'clock in the afternoon, and go to the hives that need extracting, and tilt the super forward; slip the escape-board under as far as it will go, then pull the super back upon the escape-board, shoving all forward on the hive. It can be quickly done, and but few bees crushed if a little smoke is used when tilting the super.

When extracting from a hive with only one super it is necessary to have an extra super of empty combs to put under the one we take away; for it would cause a loss of honey to crowd the bees into the brood-chamber and leave them there while the super is being extracted. With two supers, however, there is room for the bees and a place to store honey if one of the supers is removed. Having placed the escapes in the evening, the first work before sunrise the next morning is to take the wheelbarrow and commence wheeling in the supers. I have 34 escapes; and were it not for the aforesaid small queens getting into the supers I could wheel in 30 of them without using veil or smoke; but with those troublesome queens, I have taken in 25; the rest were left until after breakfast, and were brought in by using smoker, veil, and brush. The 34 supers are piled up in the extracting-room, and are easily cleaned up before one o'clock. This season, to give the escapes a more extensive trial, they will be increased to 50.

I find one very decided advantage in the use of the escape is, that the outdoor work is all done in the morning and evening, and the indoor work in the shade during the heat of the day, which is no small item in this climate, where the mercury has a way of rushing up to 100° and over. I set opposite this a disadvantage. If the bees run off the combs in the early evening, the cool nights here have an effect upon the honey, and it requires more whirling of the extractor to clean the combs. I also find that, if we try to remedy this by putting the escape on during the day time, the bees will not leave the combs so readily as they do in the night.

There are several points in the use of the escape that I need to test before I shall unequivocally adopt them; but upon one point I am fully decided; i. e., their highest success will be with the shallow divisible brood-chamber. It is also manifest that the escape is more of a help to the person who works his apiary alone than to those who work from apiary to apiary with a crew of men; in the latter case it might be a nuisance.

When some of our leading producers, like Mr. France in the East, and Mr. Corey in the far West, refuse to use them, it will not do to attribute it to old-fogyism, but to the fact that these veterans are used to judging the value of new appliances by their apparent usefulness. If this point is not *startlingly* apparent, they want nothing to do with it.

The case then remains about like this: There is certainly more or less manipulation with the escape. Shall we perform this manipulation, or shall we continue to brush bees? I shall continue another season, at least, with the escape. I have tried to give an impartial view of the situation, hoping the result will be an improvement in the escape that will be startlingly apparent.

DR. JOHN DZIERZON.

AN INTERESTING SKETCH OF A GREAT MAN.

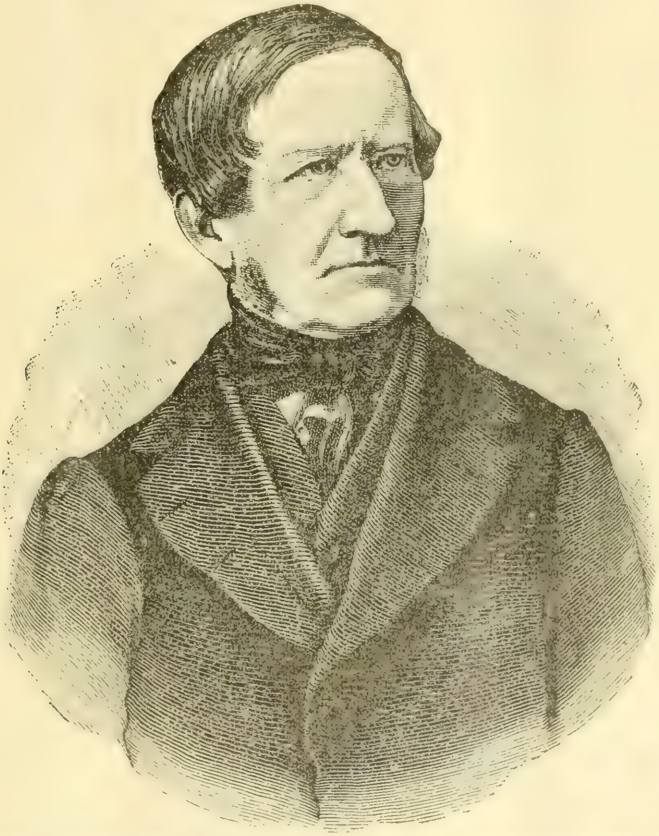
By Karl Rudolph Mathey.

Dr. John Dzierzon was born on the 16th of January, 1811, in Lowkowitz, near Kreuzburg, Upper Silesia, where his parents were freeholders. He was an ardent lover of Nature's works from his youth up, and as a boy he busied himself in the cultivation of flowers and trees. But nothing had so great attractions for him as the observation and care of bees, an apiary of which his father kept, using log skeps.

As Dr. Dzierzon early manifested a deeply religious turn of thought, his father took great pains for the further development of his son in that direction, and at first sent him to the public school at Pitschen. Here "our John" distinguished himself by his diligence and progress, and was the favorite of his teacher. In 1822, at the age of 11, Dr. Dzierzon was capable of being promoted to the Mathias Gymnasium, in Breslau. From 1830 to 1834 our great teacher was a student at the University of Breslau. Although he was always diligent in the regular curriculum of studies, yet his hours of study did not interrupt his investigations in apiculture.

During the holidays, Dr. Dzierzon always spent his time under the parental roof, and applied himself to his father's bee-hives which henceforth became his open book of observation and independent manipulation. In Breslau he spent his hours of recreation preferably at well-known apiaries, and read, during his leisure hours, with the greatest interest, whatever he could find printed or written in relation to bees. The old adage, "The bees stung him *smart* in his youth," had its most striking fulfillment in Dr. Dzierzon. His greatest delight was to admire the untiring diligence and skillful architecture of the little workers.

Becoming more and more enamored with Nature, and finding in her and in her study the marks of almighty wisdom, this struggle for light was destined to become the cause of his celebrity. So, like his great models, Schirach and Christ, in regard to solving the problem of apiculture, and procuring for himself happiness and contentment by very insignificant methods, he chose the clerical profession, in the hope that a field would be opened to him where his heart would find a means of satisfying its thirst for philanthropic work—where his progressive and penetrating mind might find opportunity to climb the heights of Nature in order to further the interests of our age. And the man to whom the whole apicultural world to-day does homage chose his lifework wisely. How many men of genius are shipwrecked on this rock! Their struggle is in vain because they are not in condition to tread that path for which their surroundings and natural capacities best adapt them, and to follow their leading desire to achieve things.



DR. JOHN DZIERZON—COPIED FROM GRAVENHORST'S "PRACTICAL BEE-KEEPER."

In his capacity as pastor of a rural congregation, Dr. Dzierzon was able to care for the bees, which he had loved from his youth up; and time enough remained to him, after caring for his spiritual flock, to busy himself experimenting in the solution of apicultural problems.

According to the methods in vogue at that time among bee-keepers, the best hives were simply four-sided wooden boxes, after the Christ system, and which were, as circumstances demanded, piled up one on the other. With such hives Dr. Dzierzon began his independent method of apiculture about the year 1835, just as he entered upon the office of pastor in the little village of Karlsmarkt. The defects of such hives did not escape the notice of the acute pastor, and the first thing he saw was the necessity of a removable straw cover which, in winter, would not permit so much moisture to be precipitated as was the case with hives covered with boards alone. In order that this straw cap might be lifted off without injury to the combs, he put on as many inch-wide bars, spaced a fingerbreadth apart, as were required to cover the hive. This being done, and the bees having built regularly to these bars, he fastened to each bar a piece of comb saved from old hives. This was the first step toward the invention of movable combs, for thereby was the master enabled to remove from the hive each individual comb. After this acquisition, the other results followed as a natural consequence. Of course, this was not all accomplished by a mere turn of the hand; but every step in advance cost an untold amount of trial and mental effort.

Still, extraordinary love for the subject itself, and a heart full of sympathy for the poor bees, whose exemplary diligence was rewarded by sulphuring, left him no room for standing still in the beaten path, and thus was originated the idea of mobility in frames—an idea over which the whole world rejoices to-day, and which is universally accepted in practice. But as soon as Dr. Dzierzon had begun apiculture on the plan of having movable frames, his active spirit gave him no rest on account of his desire to unlock the mysteries surrounding the inner life of a colony of bees. With this idea in view he was assisted to a great extent, while regulating his hives, by casting a glance at the bees whenever he could, while they were at work. By means of this research many other mysteries were cleared up—pre-eminent among which was one that revolutionized the teachings in natural history in certain classes in zoology—namely, *Parthenogenesis*.

As a means in support of his theory, and one that Dr. Dzierzon made the most use of in his discovery, the Italian bee must be considered chief. With their variously colored coat they rendered the various experiments possible; and even their color itself formed a proof of the theory. As all new ideas at first meet the most determined opposition, Dr. Dzierzon's met the same fate. Long live Dr. Dzierzon! hail to the master of the world! The greatest teachers of that time would not state as orthodox, that drones hatch from unfertilized eggs; that the queen, as mother of all in the hive, has it in her power to determine the sex of the eggs she lays. The strife that sprang up from the propagation of this theory attracted the attention of scientific circles, and the greatest physiologists resorted to their ultimate proofs—the dissecting-knife and the microscope. By means of these, and more especially by the palpable evidence afforded by the bee itself, people were at last convinced; and just in proportion as men were at first ready to cry out, "Stone him!" they were ready to make a triumphal march in honor of the expounder of the new gospel, and "went over into his camp, sack and pack," as Baron Berlepsch expressed it, for the people had grounded their arms.

The reward one receives for a great work consists not in outward show, but more in an inward self-satisfaction; and so it is with Dr. Dzierzon for the many services which he has rendered, not to apiculture alone, but for those which have benefited science in general. These services created a spirit of emulation among corporations and guilds as to who should be first in paying him a tribute of thanks and recognition. The potentates of nearly every land decorated his breast with well-earned badges of honor, as marks of their esteem; and the Lord himself blessed with special favor in giving him a vigorous and happy old age in order that he might enjoy the laurels which he had won by his genius.

Now the honored friend of bee-keepers the world over, we see here a man sought after by conventions—a man of petite figure, with a countenance beaming with the ruddy glow of youth, and lighted up with a friendly look; a snow-white head indicating great force, but, withal, clothed with a very modest demeanor that always, where possible, prompts its possessor to seek the "lowest seat," and to which attention is always turned; a man who is careful to cover himself with his overcoat, and not allow the least puff of wind to lift a lappel of it lest it discover the many honorable medals lying underneath. When, finally, you speak to a man who calmly, and with wonderful patience, listens for the hundredth time—yes, hundred thousandth—to the discussion of the same theme, and still gives you a friendly answer, and points out to you the road you are to pursue as a bee-keeper, that man is Dr. John Dzierzon; and it is your most sacred duty to bow the head in reverence to this the greatest teacher in our branch of industry.

Medina, O., Jan. 17.

SWEET CLOVER ON THE SHORES OF LAKE CHAMPLAIN.

A GOOD HONEY PLANT, BUT ALSIKE BETTER; FARMERS LEARNING ITS VALUE.

By W. G. Larrabee.

On page 82, Feb. 1, I notice that H. R. Boardman says that, with him, sweet clover is a valuable honey-plant, and I have heard others say the same. I am located near the shore of Lake Champlain, which has steep clay banks, perhaps one hundred feet or more from the top of the bank to the edge of the water. This is all waste land, and it is a perfect swamp of sweet clover, and extends in either direction as far as the bees would fly; besides this, the roadsides are lined with it as they are in many other places. This makes a good many acres of sweet clover within range of my bees, and it is generally in full bloom at about the close of the basswood flow, and I never think of depending upon it for any surplus honey, except, perhaps, to finish up a few of the sections that are on the hives at the close of the basswood flow. The bees generally fill up the brood-nest for winter a little from it, and it is some benefit to me in that way; but I have yet to see honey put into the sections to any great extent from sweet clover when no other honey is coming in.

I do not pretend to say that sweet clover is of no benefit to me as a honey-plant, for the bees can at least make a living on it while in bloom, and perhaps a little more. I think it very probable the locality has all to do with it, for I certainly have enough sweet clover within range of my bees to furnish surplus honey if it yielded honey as plentifully as white clover, alsike clover, or basswood.

I have had no experience with sweet clover as a forage after it is cured, but I do know that stock will eat it very readily when green, and it is never seen to get very large along the roadsides where dairies are driven to and from the pastures.

Alsike clover is sown to a considerable extent in this locality, and I consider it of much more value as a honey-producing plant than sweet clover, and it is certainly very valuable as a forage-plant, making better hay than red clover. The farmers in this locality do not have to be urged to sow alsike clover for their stock, for they have learned to like it better because it does not grow so large and rank, and makes better hay than red clover.

In localities where it is necessary to cultivate something in order to secure a honey crop (and as it is not profitable to plant for honey alone), I think alsike clover should be recommended first, and perhaps buckwheat next; but in this locality I do not think it advisable to recommend planting sweet clover, expecting to secure a crop of surplus honey from it; but I do. advise encouraging its growth in all waste places, for farmers need have no fear of its growing where it is not wanted, and it will never become as noxious a weed as the daisy, thistle, or wild parsnip.

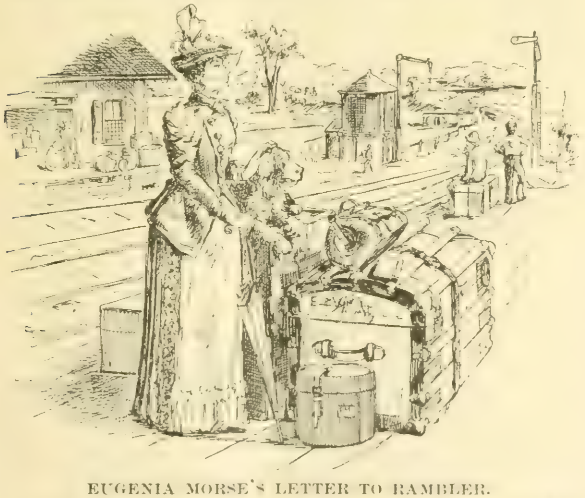
Larrabee's Pt., Vt., Feb. 10.

AN OPEN LETTER TO RAMBLER.

By Miss Eugenia Morse.

Skip ye lit-tle lambkins. Sing ye birds in glee.

RAMBLER'S EXULTATION.



EUGENIA MORSE'S LETTER TO RAMBLER.
"I shall be with you about as soon as my letter. You will just have time to brush up a little. EUGENIA."

Dear Rambler:—Everesteemed Friend:—I thought I would write you a letter through GLEANINGS, as I do not know the number of your postoffice box; and at our postoffice the box is more important than the State. However, it is hardly worth while, for I shall be in California about as soon as this can reach you roundaboutwise, and you will not have more than time to brush up a little before I shall be there, bag and baggage, to stay for good and all. I intend to keep house for you, for I am tired to death reading about those pancak There must be a change or you won't live long. Now, if you would take a little salt and shortening in the flour, and wet with cold water, and roll thin, and bake on griddle, you would find them a heap better. However, it is not worth while writing recipes when I shall be there soon to do the cooking. Father used to say, "Feed your beaus pie, Eugenia," so I shall give you pie if there are any apples in that orange country. Oranges seem too picnicky for common use. How I long to be out in the brush picking sticks for the oven, and away from slavery to the ax and wood-choppers! Such a free, easy, romantic life is just what I've sighed for all my days (since I grew up). I feel young—so *very* young I'm sure we shall make a pair; and if you look as old as you did the morning you went to Chino we shall be a match in looks without disparagement. What I like in you is the way you keep an umbrella. Such careful ways go to my heart, and I know you are not an inferior manager, and will get rich—too rich, may be. We must not set our hearts on riches. My failing is to be a trifle jealous, and I am so pleased to see you so indifferent to all females as you journey over hill and dale, caring for no tricks or wiles in the fair, only to cook; and, though not a blonde, I can do that. When I think of the fair, and what may happen before we make a pair, and since you wrote last, my heart beats fast. But, don't you hear me coming right along with my dog?

I must close. News is scarce.

Home, Jan. 23.

SENDING QUEENS TO CALIFORNIA.

EXPERIMENTS IN SUITABLE CANDIES; CONSTRUCTION OF CAGES.

By W. A. Pryal.

Editor Gleanings:—I feel that I was more than unusually honored in the issue of your publication of the 1st inst., for I find that, besides the editorial, Dr. Miller and the Rambler have each something to say about the article I contributed to the *American Bee Journal* last month on shipping queens to this State from eastern points.

When I wrote the said article I did not think it would attract any particular attention. I wrote it in the interest of our queen-breeders, hoping that they might be able to find a way around the difficulty I dwelt upon. While the queen-breeders would be the greatest gainers by the discovery of a sure method of sending queens safely every time to this coast, it is true, too, that the individuals ordering queens from the breeders would also be materially benefited, for it would insure to them the certainty of getting a live queen every time they ordered one. There is nothing so exasperating to a bee-keeper away out here as to wait two weeks, perhaps with a queenless colony, in anxious expectancy of getting a fine tested Italian queen, and, when the wished-for cage came to hand, lo and behold! the fine queen was as dead as a doornail. Again, another two weeks would pass, and a cage would be handed the expectant consignee by the postmaster, which, on being opened, would be found to contain another queen that had "given up the ghost" somewhere out on the plains, or on the desert.

This is no fanciful sketch; it is unvarnished reality—it has happened me more than once. A man getting queens in such condition must have a large stock of patience, if he can keep from indulging in some pretty hard language. I do not throw this out to intimate that I have felt so bad myself under the circumstances. I put on a bold front, and determine to try again. I have the consolation that, if the queen-breeder can stand it, I too surely ought to. But, nevertheless, I do not relish the situation, neither do I like to see a breeder put to the necessity of having to send another queen to replace the one lost in the mail. It requires time, patience, and money to rear queens; why should not the fraternity do its utmost to devise a cage that will be such that there will practically be no losses in mailing a queen to any reasonably distant point?

I continued my experiments last summer and fall to a considerable extent, at some expense to myself. Though I have learned a good deal that did not seem to be known before to our breeders, I am not yet fully satisfied. I intend to carry my experiments still further.

I do not think it is so much the dry climate of this State, as you say in your editorial on page 103, that causes the candy to dry up, as it is the scorching heat of the deserts in Utah, Nevada, or Arizona, through which the queens have to pass. Those going by the central route do not go through the latter territory, while those that take the other course have to bear the heat in that hot climate, and, in addition, have to stand some of the high temperature of the wastes the railroad traverses in coming into Southern California. But I do not think that the heat of this region is as bad as that of the deserts of Arizona, or along a large portion of the central route before the California State-line is reached. Whether a queen would be apt to fare better by taking the more circuitous route, via Oregon or Canada, I have my doubts. The climate may be a trifle more favorable; but the additional time to make the trip, to say nothing of the additional rough handling she would be subjected to by the railroad postal clerks, would be too trying for her. I believe that we can not get a queen too quickly to her destination. There seems to me to be no need of a queen being longer than seven days making the journey from one end of the United States to the other. This time is not too long for the most delicate queen to stand the hardships of the mail, provided she is suitably provisioned for the trip.

In my experiments last year I sent a queen that had been caged over night before she was put into the postoffice, to Chicago (to the office of the *American Bee Journal*), where she was examined and immediately returned to me. As she reached me in good condition after making this severe trip at the very hottest time of the year, I at once dispatched her in care of Uncle Sam to a distant postoffice in Texas, where she arrived alive. That was a trip that few human beings would like to make in the same space of time at the hottest season of the year, as I have said. The candy used on this occasion was as soft as I could conveniently have it without its running in the cage.

But in other experiments, tried under similar conditions, the queen did not fare as well. Several times the queens died in transit. Sometimes a bee that died would get stuck in the candy at the entrance of the candy-compartment, and thus shut out the other bees from having access to the food. I thereafter remedied this by having the food-compartment so arranged that, if a couple of bees were to try to clog up the entrance, still there would be room enough for the other bees to get to the candy.

In one case I tried the sponge method of shipping. This was the way used some years ago. It was usually successful in the days of yore; why should it not be so now? The old way was to put a piece of sponge in one of the holes of the cage, and saturate it well with honey. Most breeders used a thick quality of honey. I thought it better to try honey that was considerably thinned by diluting it with water. It worked well, but I preferred candy in a cage that was provisioned with a reservoir for water. I think, though, if I could get a cage that was suitably constructed I should prefer the diluted honey and sponge method. There is no doubt in my mind that honey is the proper food for bees at all times, especially when being shipped in the mails.

I am firmly of the belief that no queen should be placed immediately in the mailing-cage and sent right off to the person ordering her. It would be well to keep her over night in some suitable cage, or, if more convenient, the shipping-cage will do. This will give her a chance to lay a large portion of the eggs that she is charged with. She will then be in better condition to make the trip.

In your editorial you "suggest that the Atchleys commence experiments, not only for their own personal advantage, but for the benefit of the brotherhood of queen-breeders and their customers." In this I had more than anticipated you, Mr. Editor. It was after getting a couple of dead queens from Mrs. Atchley that I suggested that we conduct a series of experiments to find out if we could not hit upon some better way of sending queens safely to this coast. We used all the cheap though healthy queens we could spare for this purpose. Queens were sent back and forth between us for some months. Sometimes they would reach their destination all right; at other times they and all the bees accompanying the queen would be dead. When a queen would come to hand safely she would be reshipped, so as to cover as many miles as she could before the supply of provisions gave out. Mrs. Atchley's best success in sending queens to me was when she had them mailed in double cages, or what she terms "import" cages. These are the ordinary two-ounce cages—two of them being nailed together face to face. I am of the opinion that it would be impossible to ever lose a queen in one of these cages when the candy is just right and the ventilation ample during the hot spell.

I believe that many shippers do not pay enough attention to the importance of ventilating their cages that are sent out in midsummer. Sometimes a large lot of workers are sent with the queen; these bees have a tendency to raise the temperature of the cage, even above what it is without the car, which may at the time be going through the hottest portion of the country. I have received cages overloaded with bees, at the height of the hot spell, and no more ventilation was provided than that made by the manufacturer of the cage. The makers of shipping-cages do not put in any more ventilating-holes in the cage than are required for the coolest part of the year; they could not very well do otherwise, for the reason that, if there were more holes, it would be harder to stop them up when they were not wanted than it would be to make additional holes when they were required. Perhaps the proper way to overcome this feature would be for the user of shipping-cages to call for two kinds of cages—one kind to have no more ventilating apertures than necessary, while the other should have ample for the warmest portion of the year.

I consider this matter a very important one, and hope that our queen-breeders will give it as much attention in the way of experiments the coming season as they possibly can. Already, from what I learned the past year, I feel that I can ship queens to any part of the Union and seldom lose a queen. So confident have I become in this matter that I have about concluded to make queen-rearing (as a business) a part of the work in my apiary the coming season, and I expect to send some queens to the farthermost parts of the country. My location being one of the finest in the United States for shipping, especially to the islands of the Pacific and to the Orient, I hope to do enough in the queen-rearing line to pay me for the trouble attendant in conducting such a branch of the apiary. I am located directly opposite the Golden Gate, and snugly ensconced in the Contra Costa foot-hills. The ride to San Francisco by rail and ferry is 45 minutes, which places me in quick communication with the Pacific metropolis. Then Oakland, which is only four miles away, and which place is the terminus of all the railroads coming into California, will give me a chance to get my queens into the mails and off to the various points to which they may have to go, without any loss of time.

Since I wrote article for the *American Bee Journal*, several breeders in the East have sent me the style of cage they use. Of the several that I received, that of W. C. Frazier, of Iowa, seems to be the most practical. He claims that he has had excellent success in sending queens in his cages to distant points. I shall give it a trial with different kinds of candy. It seems to me that his cage is the best to use where the shipper uses a very soft candy. There will be none of that clogging that I have referred to in the fore part of this letter, as there are so many places for the bees to get at the food.

On page 80 of GLEANINGS, Dr. Miller suggests the making of a candy that is hard on the outside and soft in the middle, after the fashion followed by confectioners in making a certain kind of toothsome candy. This may not be a bad idea. I do not know how it would work. I think the following might be a better way, and it is not altogether unlike the plan suggested by Dr. M.: Have two holes for the candy, they to be connected by a small opening between the two. Into the one next to the part of the cage inhabited by the bees as a living-compartment, place a candy of the consistency of that used for ordinary shipments. In the next one, place a rather soft candy. There should not be more candy in the first hole than will be required to take the bees to the place where they will enter the hot region. They will then be ready to commence operations on the soft candy, which will be their food until they reach their destination.

Rambler, on page 87 of the same issue, mentions a case where a breeder in San Bernardino Co., this State, shipped queens to a bee-keeper in Inyo Co. in April, the latter being anxious to get early queens, as he could not raise them in his location. To get to Inyo Co. from any part of California near the coast is about as bad as making a trip from San Francisco to Chicago; in fact, I would sooner go to the latter place than I would to the county "over the hills and far away," though Inyo Co. is no mean place, by any means. The range of hills, or, rather, *high* mountains, makes it necessary, in order to get to some of the sections thereabouts, to go to San Francisco and other coast points to Reno, Nev., via Sacramento, and thence through Nevada to the lower, middle, and eastern part of the State of California, where Mono and Inyo Counties are situated, unless one travels other than by rail. It is a long roundabout way, and is not only a costly but a very disagreeable one. I believe most if not all the land there is very much elevated, consequently it is much colder for a longer portion of the year than most other parts of California, save on some of the eternally snow-capped peaks of this State.

Yet I think I would undertake to get queens to the gentleman the Rambler refers to during April. In sending queens to such a place one must provide a warm cage in the fore part of the year. The trip over the mountains via Sacramento and the summit is a cold one, even in early May, as I have found out. The highest point is on the line in the Sierra Nevadas, in California, being 7017 feet, which is up pretty high. By a careful study of the country through which one's queens are to pass, there is little danger of losing a single bee by following all the little details as to food, ventilation, or, when necessary, the wrapping of the cage and the number of attendants accompanying the queen.

Mrs. Atchley has pressed me to devise a cage that shall answer all the requirements necessary in a cage for long-distance shipping. I do not think I shall be likely to hit upon the cage that will fill the bill. I am inclined to think that some one of the several cages now in use will come up to all the requirements when we learn *what is the right food* to place in them to keep the bees alive during the journey. As I have said before, there is room for experiments in all these directions; and let us hope that, before this year is ended, the queen-breeders of this land can exclaim, as they behold the long-wished-for cage and shipping-food, "Eureka!"

North Temescal, Cal., Feb. 9.

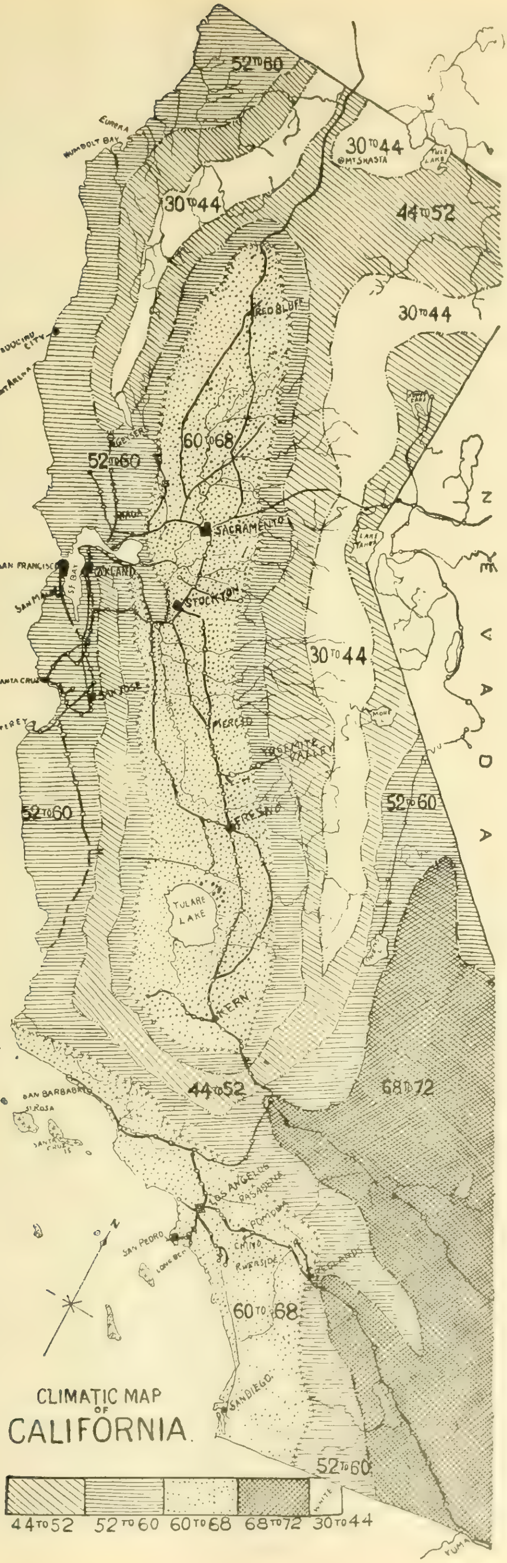
THE CALIFORNIA KING-BIRD.

By Prof. A. J. Cook.

As is well known, the eastern king-bird, or bee-martin — *Tyrannus tyrannus*, Linn.,—is not only an insectivorous bird, but has the exceptional and injurious habit of snapping up and devouring our bees, both workers and drones, as I have surely demonstrated by opening the stomach of the bird in question. The bird rests on some perch near the apiary, and, as the bee flies by, swoops down upon it and bears it in its bill back to the perch, then seems to swallow it at its leisure. How about the stings? Has the bird learned some bright way to avoid them? It would seem hardly possible. Or has the throat of the bird become insensible to the stings of outrageous—not fortune, but bees—and so the bird's throat becomes a sort of pin-cushion for bee-stings? I have found by actual examination that this is true of bee-eating frogs. After seeing a frog lick up three or five bees I killed the batrachian and found that his toadship had just that number of stings holding to the walls of its pharynx.

California has also its king-bird, or the California bee-martin, *Tyrannus vociferans*, Swains —which, I learn, also preys on bees. This is about the size and form of the eastern species, but is dark gray in color. I have just prepared the skin of one of these for our college cabinet, and found two olives in its stomach. We often notice that another biped often presumes on the capacity of *its* stomach when eating the delicious olives, and it would seem that this king-bird did the same; for it is hard to see how so small a bird could swallow two large olives without damage to its stomach. It is said that people have to learn to like olives. Is it not presumable that the California bee-martin's taste for olives is also acquired, as the olive is intensely bitter? We see, then, that this California king-bird is an enemy in two important senses: It kills bees, or is said to do so, and it certainly eats olives. As I am now right in the very center of this marvelous bee-country I shall soon know whether this bird does eat bees; and if so, how the sting matter is managed. This is only one of the many important problems that await solution in the land of the sunset.

Claremont, Cal., Feb. 14.


PACIFIC OCEAN
NEVADA
52 TO 60
30 TO 44
44 TO 52
60 TO 68
68 TO 72
Eureka
Humbolt Bay
Mt. Shasta
Tule Lake
Red Bluff
Mendocino City
Point Arena
Geysers
Napa
Sacramento
Lake Tahoe
San Francisco
Oakland
S.F. Bay
San Mateo
Stockton
Santa Cruz
San Jose
Monterey
Merced
Yosemite Valley
Mono
Fresno
Tulare Lake
Kern
San Barbara
St. Rosa
Santa Cruz Is.
Los Angeles
Pasadena
Pomona
San Pedro
Long Beach
Chino
Riverside
Redlands
San Diego
Yuma
White
CLIMATIC MAP OF CALIFORNIA
44 TO 52
52 TO 60
60 TO 68
68 TO 72
30 TO 44

RAMBLE 103.

CLIMATE OF CALIFORNIA.

The Rambler this time holds before the reader something that looks much like an anatomical figure of a man's body. The back seems to have received a hard knock, and there's the stone that did the knocking, securely lodged in the back. A closer observation, however, enables us to read upon it the words Lake Tahoe. That dispels the anatomical idea as applied to man, and we have before us a climatic map of California.

The climate of this State is so diverse that it is the boast of its inhabitants that it can supply any kind of climate desired, and at few hours' notice. That this claim is not without foundation, we can prove from the study of the very interesting map before us. The State of California measures 800 miles in length by about 200 in width; and could its area be correctly measured it would be the first State in size in the Union. To illustrate, Texas is called the largest State. Let us lay down a large piece of cloth to represent that State. Our cloth would represent a nearly dead-level plain, with a few wrinkles in the northeast, representing hills. Let us now lay down a large cloth representing California. Our second operation upon the cloth would be to commence puckering it up. Here we make an immense pucker to represent Mt. Whitney, 15,000 feet above sea-level; then another pucker for Mt. Shasta, 14,000 feet; then we keep on puckering 14 other mountains that average 10,000 feet each; then the immense Sierras; the Coast Range; San Bernardino, and a host of lesser mountains and ranges, and every one of them cut into by immense canyons, of which the Yosemite is only one of the noted. When we complete the puckering of our cloth, and have before us a relief map of the State we find the earth-sculpture here fashioned upon a mighty scale; and the contrasts of heat and cold are no less striking; for, from Mt. Whitney's summit, capped with snow, we look down upon the most desolate and torrid region on the continent—Death Valley—the area of which is much below the sea-level. Could we, therefore, iron out all of these immense folds as we can iron out square of cloth, and measure it, it would result in an immense land area, the greatest in the Union, according to the government measurements. However, from the tops of our mountains we shall have to give the palm, as to size, to Texas, and content ourselves with other great features that can be found only in this State.

The climate of California, and its varieties, have been the subject upon which many writers have expatiated; and although we have many varieties of this commodity, the seasons are reduced to two—the wet and the dry, or the summer and winter; and these are so near akin that our winter would pass for a very fair summer in some of our Eastern States, while spring and fall are unknown.

The causes that are constantly at work to produce an agreeable state of the atmosphere are, our mountains on one hand and the warm currents of the Pacific Ocean on the other.

If we look at the map we find that the various shadings represent the various mean temperatures that are found in the State. First, the dark shadings in the lower portion represent that part of the State that has the least rainfall and the greatest heat, and embraces the Mojave (Mohave) and Colorado Deserts; and when we speak of deserts, do not think of them as a dead-level plain, for it is not. Sand dunes, hills, and even respectable mountains, are in this hot country. The figures 68 to 72 convey but a small idea of this country; for in the hot season it is full of terrors, and not a season passes but parties led on by the alluring idea of finding gold-mines in this forbidding region suffer terrible hardships, and many leave their bones to bleach on the arid sands. The terrors of this region culminate in Death Valley. Still, there is a redeeming ray of hope for much of this region. If water can be introduced to it, the desert will be made to blossom in beauty.

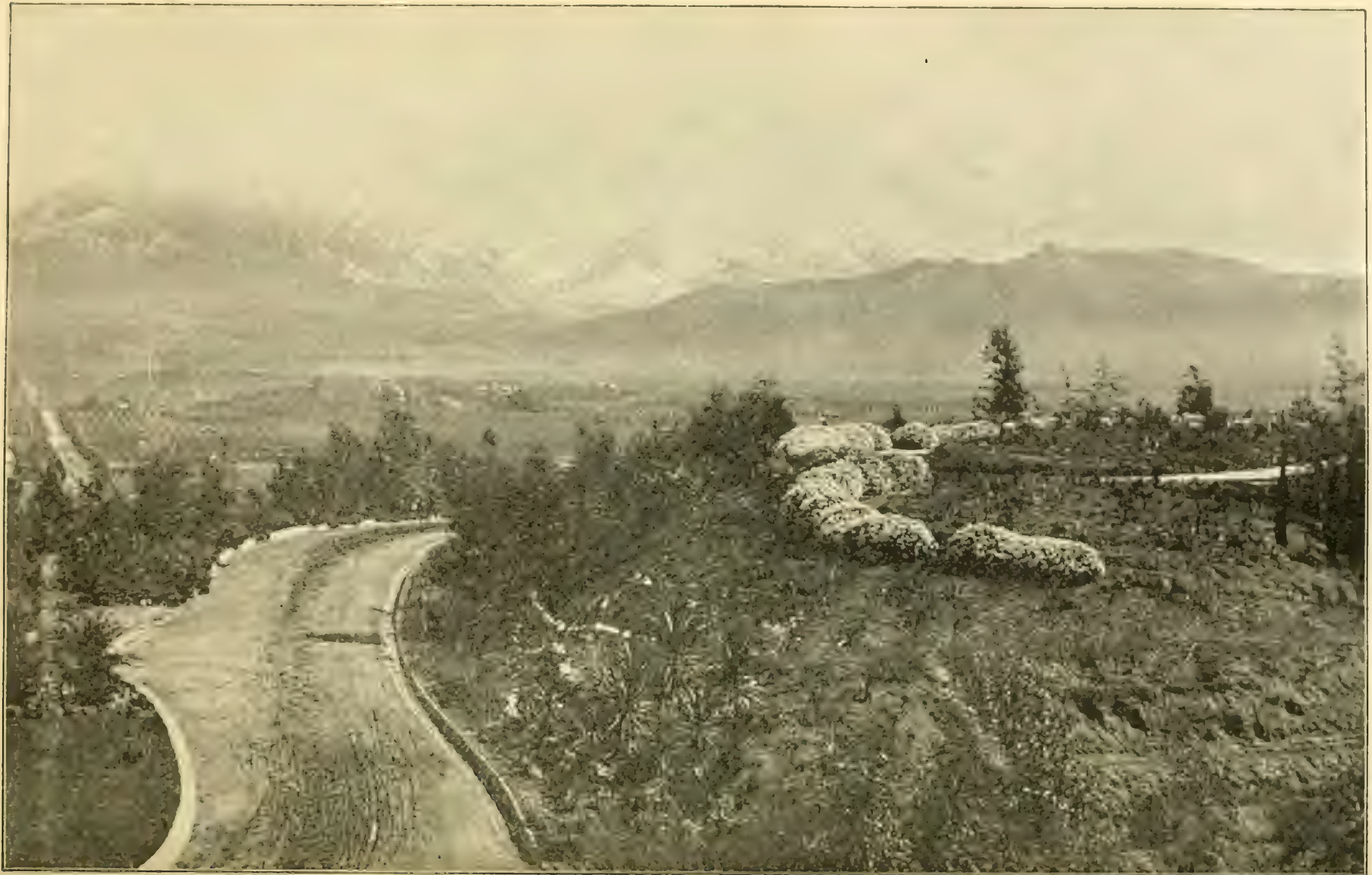
Within the speckled portion of the map we find the great fruit and grain producing region. In the southern portion is the citrus belt, supplemented by similar belts in the extreme northern portion. The long speckled portion represents the interior basin of the State, including the San Joaquin and Sacramento Valleys. It is in these valleys that the immense amount of grain is produced; and the rancher, instead of watching the skies, as does his eastern brother, in fear that an untimely shower may ruin his grain, piles it up in sacks like so much cordwood, where it remains for months uninjured.

While citrus fruits are predominant in the southern speckled portion, deciduous fruits and grapes are the main products in the fruit line in the interior basin. It is in this portion, also, that we find the greater portion of bee-ranches; for it is here, and in the portion marked with horizontal lines, that the sages grow the most luxuriantly, and the thousands of other flowers for which California is noted. In this interior basin the temperature sometimes rises to 115° in the shade; but, owing to the dryness of the atmosphere, this temperature is not felt so acutely as 90° in the East. In proof of it, sunstroke is *almost* unknown on this coast. In this speckled portion the temperature also registers at times a few degrees below the freezing-point. It is then the orange-grower gets anxious about his tender product and investigates his damages.

The portion of map marked with straight lines is that portion having the least variation in its climate, and includes nearly the whole sea-coast, and it is termed the frostless belt, as well as escaping the extreme heat of summer. It will also be observed that a narrow line of this shading surrounds the central basin. This line might be indefinitely extended around every mountain and foot-hill in California. It is in many portions of this line that tomatoes are grown the year round, and those portions that boast of raising strawberries and kindred fruits all the year round is in this belt. In this portion are found the hot and mineral springs, and it is here the health-seeker finds a home and a prolonged life. In this portion, as well as in the speckled portion, the nights are nearly always cool; and, however fatigued a person may become with the toils of the day, he can retire to refreshing sleep; and the more refreshing it is if taken under the blue dome of heaven.

There is not the least doubt that, if persons having pulmonary troubles will come to this State at an early stage of the disease they will find health and a long span added to their lives; while it is equally without a doubt that, if such persons delay until one foot is already in the grave, the other foot will soon follow upon their arrival here. A person coming to this State for health, and not finding it, should study this climatic map, and change his location from time to time to a higher or lower altitude, and soon the suitable point will be found, and improvement will be first manifested in an elevation of the previously depressed spirits, and, finally, more endurance, and a desire to be out in the pure air; and here there is ample opportunity to indulge in this desire, or, during three-quarters of the year, the skies are cloudless.

The next belt marked with diagonal lines includes the higher foot-hills and the most of the Coast Range, and quite a large area in the northeastern portion of the State. Some snow falls in this portion, and the temperature gets down to a biting degree. Still, it has many localities in which it is desirable to live. It is said, by those who have investigated the northeast portion, that it has an abundant honey flora, and it will be only a question of time when this portion will also be dotted with miniature cities of bee-hives. It would be well, perhaps, for those who are seeking new honey-fields to deflect their course into this region,



near to or remote from Honey Lake, and the results in that unoccupied field might be as good as or even better than in the overcrowded southern fields.

There is one peculiarity in this climatic belt, and also in the belt below it. There are many locations where the influence of climate is such that, even in Northern California, fruits are grown and put upon the market earlier than they can be produced in the warmer south.

The last belt, in white, marks all of the higher altitudes, and the average temperature, 30 to 44, reveals a very low temperature during the winter months; and if a person who has formerly lived in the cold eastern climate, and now resides in the sunny valleys of California, desires to taste again the rigors of an old-fashioned winter, a few hours' ride will land him where ice freezes a foot thick, and is harvested for commercial purposes—where sleighbells jingle, and where snow in great quantities is found—in such quantities that the So. Pac. R. R. is covered with immense snow-sheds for 40 miles, and still we are in California. These higher altitudes are noted mostly for producing our finest pine lumber, and the lumber business is the chief industry. It is quite probable that bee-keeping is at a discount in this region. A bee-tree may now and then be found, but those wonderful finds of honey in trees and caves are not found in this region. The higher altitudes in all this region as we approach those mountains over 8000 feet in height are practically unexplored and desolate regions; and it is here that we might change the term from "climatic" to "climb-matic" California; but in this phase the Rambler has shown quite conclusively that the climb-matic portion also exists in all portions of the State. In this belt the gold-seeker is probably the most persistent explorer, and the marks of his pick are left upon the most inaccessible mountain-side; and since silver has received a setback, the gold-seeker is out more numerous than ever, not only in this climb matic belt, but all over the State, and, as before stated, the bones of some of this class are bleaching in the vicinity of Death Valley. The hunter now enjoys the climb-matic belt, for it is into these remote regions that the grizzly bear has now retreated. The advance of civilization, and cultivated lands in the lower belts, drive all wild animals into these regions, and even here they are remarkably shy, and not an easy prey to the hunter. The bee-keeper hardly ever ventures into this belt unless it is for the pure love of climbing, and to experience the thrilling views from mountain-peaks.

The portion of the climate of California that is disagreeable to many is the periodical northers. The norther is presaged by a few days of remarkably clear days. The distant mountains can be seen with such distinctness that they seem but half the distance they really are. The eagle soars at a great altitude, and, with head to the north, suspends himself in one spot for a long time. The next morning the wind begins to blow; little clouds of dust rise here and there in the valley, and ere noon the air is full of fine dust, hurled along by the wind, which has now attained much velocity; but it is scarcely ever destructive. The effect of the norther is to produce languor and headache upon a great majority of people. The wind is said to be highly charged with electricity. Though disagreeable to endure, these northers have a beneficial effect in clearing disease-germs from the atmosphere.

If, in the height of the honey season, the norther comes down upon the blossoming flora, the bee-keeper hangs up his hopes for much honey for several days, for the sources of nectar are thoroughly dried, and do not quickly recover.

By referring to the map it will be observed there are but few lakes in the State. Water, in a great measure, is hidden beneath the surface, and the so-called dry rivers in the southern portion are found to be running (or percolating) streams when we dig beneath the surface. The northern portion of the State, having more rain, possesses the most live streams.

Taking it all in all, this sunset land has fewer disagreeable features than our Eastern States. We can sleep outdoors nine months in the year; and, while we are living with the roses, and imbibing their fragrance, we can look across them to the snow-capped mountain; the added pleasures of good health; a measure of prosperity, where ten-acre farms and less care are the rule. These all make California a desirable home to many besides the RAMBLER.

USE FOR THE SELF-HIVER.

HOW IT MAY SAVE UNNECESSARY LABOR ON SUNDAY.

By C. H. Dibbern.

"Is it right to hive bees on Sunday?" is a question asked by W. E. Dean, on page 99. I do not propose to go into the religious aspect of the question, but wish to show that such work is entirely unnecessary. It would certainly not be right to allow swarms to go to the woods because they happen to issue on Sunday. Such swarms usually represent all the profit we can reasonably expect from a colony during a season; and to allow such to depart in peace before our very eyes, or during our absence, would not be doing our best for our families. If it is worth our while to keep bees at all it is worth doing right; and if we do not need the profits from the bees, for the necessaries of life, we find such income very convenient to buy luxuries, such as magazines and books, musical instruments, furniture, pictures, and a thousand other things that go to make up a home.

No; don't let the swarms go to the woods, neither oblige some of the family to remain at home to "watch for swarms."

Drone-guards will prevent swarming temporarily; but I object to them on account of the drones fussing to get out, and keeping the whole hive in a hubbub. Why not use the drone-trap pure and simple? That will do away with the drone nuisance; and, should a swarm issue, catch the queen and save your swarm, even while the whole family is away listening to the sermon.

Now, instead of dividing on Saturday, as proposed by Mr. Dean, when perhaps the bees are not ready for such division, or so far advanced that they would swarm again in a few days anyhow, you can make such division as desired, on Monday. The drone-trap is good; and if there were nothing better I should use it on every hive in my apiary during the swarming-period. But, why not go a step further and use the self-hiver? But it will be objected to as not yet being perfect, or, at any rate, as not being generally understood. It is true, there have been many failures, and some have given up in despair.

After a great deal of experimenting during the past four years, on a large scale, I have finally adopted a plan that works fairly well. It has all the advantages of the drone-trap, and goes much farther, as it hives the swarm in the hive, where they are to remain. The plan consists of an empty hive placed on a wood-zinc honey-board, on a bottom-board placed in front of the swarming-hive, as heretofore described in GLEANINGS. The bees pass from the old hive through the bee-space formed between the bottom-board and honey-board, and through the swarmer at the entrance. A few will work up through the honey-board, and out of the entrance of the new hive. As swarming approaches, some bees will take possession of the new hive, and will commence drawing out the foundation, and commence filling in honey. How far this may be desirable before swarming, I have not yet determined; but it can be regulated by covering a part of the honey-board, under the new hive, with oilcloth or tin.

One objection to putting the old hive on top of the empty one is, that the bees too readily accept it as a part of their hive, and use it for storing honey in, instead of carrying it into the sections.

I have no "ax to grind" in this matter, as I have no idea of patents, etc. My only desire is to make bee-keeping less irksome. If one has but half a dozen or so of colonies it will certainly not pay to watch for swarms or keep the family doing such useless work. If one has colonies by the hundred, then there is all the more reason for using the hiver, as there is no such trouble from doubling up as where natural swarming is permitted; neither is any climbing of tall trees, endangering one's life, at all necessary. There is no sulking of bees in my plan, and the little run through the space under the new hive seems only to give them additional energy. The swarming propensity is also greatly abridged.

Milan, Ill., Feb. 9.

[You are quite right. The self-hiver will save unnecessary work in hiving swarms on Sunday. One quiet Sunday morning three or four swarms came out, and A. I. R. came rushing over to "our house," telling us that the bees needed looking after, as they were swarming. In later years he has left all such work for us. We very quietly replied that they were all right, and that we need not trouble ourselves, as self-hivers were on those colonies that were likely to cast swarms. A. I. R. was a little skeptical, but in a few minutes he was satisfied that the self-hivers were doing their work. Monday morning showed that the bees of each swarm had gone into the new hives, gone to work, and every thing was as nicely done as if we had done it ourselves, with all the usual paraphernalia, such as bee-veil, smokers, hiving-boxes, and squirt-gun, to say nothing of hurrying and scurrying about, shinning up trees, taking stings, etc.—ED.]

CALIFORNIA ECHOES.

BY RAMBLER.

Dr. Miller looks very Y's
While he sits at his E's
Poking straws into other mens I's,
Shouting, "It's all in behalf of the B's."
Now, Dr. M., just mind your P's
Or we'll send you o'er the C's
Where the Chinamen pick T's;
Then what'll you do for straws and B's?

No, Dr. M., I did not get the kerosene in my flap-jacks; but I must *'fess* I did get some on my toast one evening.

Some of our California bee-keepers are getting blue on account of the light rainfall up to date. Keep up courage, gentlemen; late rains sometimes do a world of good.

The latest wrinkle of the enemies of the bees is to mix yeast and honey, and expose it where bees will get it. The mixture, when stored in the hive, sours and ferments, and is disastrous to the colony and the bee-keeper.

Just see what sort of men we had at our State convention: W. P. Richardson, 65 tons of honey; Mr. J. Moffatt, 54 tons; J. F. McIntyre, 24 tons; M. H. Mendleson, over 30 tons, and others well up to those amounts, too numerous to mention.

Railroad statistics for 1893 give a sum total of honey shipped from Southern California at 3,303,000 lbs. Add to this the shipments by water and from Northern California, also quite an amount that is yet unsold, and the figures would run up to over 5,000,000 lbs., and not a bountiful season at that.

Prof. Cook carries a chemical laboratory in his mouth. He detected samples of honey that were mixed with glucose—some 25, 50, and 85 per cent mixtures that were prepared by Mr. Brodbeck. Prof. C. says that people using this mixture for a while get a dislike for honey—another argument in favor of laws against adulteration.

Bee-keeping seems to be getting some hard knocks from Uncle Sam down in Orange Co., Cal. A government reservation has recently been parceled off, and everybody is ordered off the land, including several bee-keepers. Of course, the busy bee will not harm the trees and the flowers, but the busy bee-keeper can wield an ax, and that's the reason why they have got to get out.

We think bee-keepers in this State should begin to turn their attention to planting honey-producing plants and trees. Our irrigated district, where the sages have been cut off, would grow many Eastern plants; but here lies an obstacle. Irrigated lands are subject to close and clean cultivation, and there is no room for weeds. But for all that, we have a mind to see if the noted willow-herb plant will grow here.

TRADE NOTES
BY EARNEST R. ROOT.

LET US BE CHARITABLE.

T SUPERS VS. SECTION-HOLDERS.

By Dr. C. C. Miller.

I have a letter from a Canadian correspondent who desires a reply in GLEANINGS. He prefaces his questions by saying that there are few whose advice it is safe to follow, because policy rather than conscience seems to be the governing motive. Don't you think you're just a bit hard on your kind, my friend? I know we're a pretty selfish lot all through, and yet I find evidences of no little unselfishness and conscience left. I was in Chicago a few days ago, and in several instances asked information and advice of entire strangers. In every instance it was given with apparent pleasure, and, I think, with real interest. One man took the trouble, of his own accord, to write down an address I asked for. A boy walked some little distance out of his way to a point where a building could be shown to me. In the hundreds, perhaps thousands of instances of the kind, I have very rarely found any other spirit.

I believe that bee-keepers are just as good a lot as the average—indeed, I think a little better; and although it isn't a safe thing to follow indiscriminately the advice of all, it is more because they don't know, even where they feel positive they do know. If I were to follow all the advice given me, I should have a hopeless tangle of all sorts of things in use, much to my detriment; and yet I believe the advice is usually given in the best spirit, and with a real desire to serve me. A man finds something that he is much pleased with, and he is hardly to be blamed for thinking it would be a good thing for me. So, let's be as charitable as we can.

THE SUPER I PREFER.

You ask me to give my choice of comb-honey super, with reasons therefor. The printing of my answer will be a proof of unselfishness on the part of GLEANINGS, and yet I'm sure the answer will be printed, for my choice of super will not agree with his. He will tell you the section-holder, and I'll tell you the T super. He'll think, even if he doesn't say so; for, between you and me, he's a good bit of a gentleman—he'll think I'm a bit pig-headed and old-fogyish, and I'll think I know better than to be taken with a new thing just because it's new.

MY REASONS.

Well, I've tried largely wide frames, Heddon or Moore supers, and, to some extent, section-holders, and I think I can get better results, with less labor, with the T super than with any of these. But that may not satisfy you, for those who are just as fit to judge may prefer one of the others. It is hardly worth while to discuss wide frames, since they are so generally discarded, and yet I had good results with them. The Heddon crate will not allow the use of separators, and that is a necessity when honey is to be packed for shipping.

Section-holders, as I have said, I tried to a limited extent, and should have given them a fuller trial, but it cost too much time and temper. Perhaps others have found it easier to empty them, and the fault may be mine. That aside, I may say that, for my use, the T super has decided advantages, and I don't know of any advantage but one that the section-holder has. With the T super, separators can go no lower than the T tin, while the section-holder allows them to go to the bottom of the section. That, you see, leaves a space the thickness of the separator, for a distance equal to the height of the upright part of the T tin, to be filled in with propolis in the T super, which is avoided in the section-holder by having the separator go clear to the bottom.

Now, please remember that I said that, *for me*, the section-holder has no other advantages that I know of. I'm not quarreling with what others prefer. The claim is made, that open-side sections can be used in section-holders and not in T supers. Well, I don't want open-side sections, so that doesn't count.

Root's A B C says, "As the upright of the T takes about $\frac{1}{16}$ of an inch, it leaves a space between two rows of sections, which the bees are inclined to fill with propolis." If that means at the top, it is obviated, as mentioned in a footnote, by pieces of separator stuff ¼ inch wide. If it means along the full length of the sides of the sections, it is simply an impossibility for the bees to get at that part, and, as a matter of fact, that part of the section comes out just as clean as it went in. Indeed, with these little separators at the top (and I wouldn't think of doing without them) it is the T super and not the section-holder that has the advantage; for, no matter how little the play, there must be some play in the length of the section-holder to allow the sections to be got in, and it will be just play for the bees to fill up that play-space with bee-glue. In the T super, all the play is taken up by wedging in the top separators.

The A B C says the one-piece sections in T supers are likely to be a little diamond-shaped. I think that must have been written before knowing about putting in the little top separators, for with them the sections are perfectly square. On the other hand, there is more chance for sections to be out of square in the section-holders, for the bottom-bars of the section-holders will sag. That may not throw the sections out of square enough to be serious, but it may be a serious matter in another direction. Nowadays we want to maintain an exact space between the brood-frames and what is over them. These bottom-bars need to sag only an eighth of an inch or less to insure the space being filled with propolis, fastening the bottom-bars of the section-holders to the top-bars of the brood-frames. The T tins are entirely free from any sagging.

The A B C says, "Bees will always fill the sections directly over the brood—that is, the central ones—before they will the outside rows. In order to make them fill out alike, it is not an easy matter to change places with the central and outside rows," in the T super, but with the section-holders "the outside rows can easily be shifted from outside to center." With me this does not count for an advantage, for, if the shifting could be done twice as easily with the T super as with the section-holder, I would not shift them. From long experience I have found that the bees will not always make as nice work finishing up a section that has been moved; and in any case I want the work done in a wholesale manner, taking off a super when all but the four corner sections are finished, if, indeed, any are unfinished. Then the unfinished one can be massed in a new super to be finished.

At present I'm doubtful whether any one knows for certain what is the best width for a section. I have changed once, and may change again. The section-holders will take just one width of section, while my T supers will be all right for any possible width.

My preference for the T super is emphatic, but I'm ready to change for something better. I may find it within a year, but I am not trying to invent it.

Marengo, Ill.

[As you say, Doctor, we don't agree with you. As you have been fair enough to state our arguments it will not be necessary for us to restate them We give our customers the option between the two kinds of supers so they can take their choice.—Ed.]

FOR WIDER AND THICKER BARS.

I am with Dr. Miller on brood-frames. I should like them wider than you now make them, and deeper—i. e., ⅞ deep at the out edges, or 1 in. would be better yet. Bees are not so liable to build brace-combs when the frames are ⅞ or 1 in. deep at the out edges; and when they don't build brace-combs they won't build burr-combs. With proper bee-space above the frames, the end-bars and bottom-bars are good enough I think. You might narrow the ends of the Hoffman top-bar a little, and then the end-bars would not be so liable to split, and be better to catch hold of, as one suggested some time back—J. A. Scudder, I believe—but he wants a thin top-bar, and I don't. I'll stoutly stand up for 1 in. or ⅞ at least, clear to the out edges of the frames. A. T. McKibben.

Morrill, Minn., Dec. 15, 1893.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO, N.Y.

PREVENTION OF ROBBING.

Question.—Nearly every year I have trouble with the bees robbing in early spring. Either my own bees rob each other, or the bees of my neighbors rob mine, or both. What is the best method to prevent bees from robbing? I have tried smoking them every two or three hours, but it does no good.

Answer.—The first thing to be done by way of preventing robbing is to take every precaution against the *possibility* of robbing occurring. Here is where the beginner is the most liable to err. Entrances to weak colonies are often left open full width, hives opened in the middle of warm days, or honey left scattered about in such a manner as to entice the bees to rob, rather than to use methods to restrict the natural propensities of bees to rob each other. A man once came to me with the complaint that his neighbors' bees were robbing his, and wished I would go and see that neighbor and see if he would not shut up his bees before they "cleaned his entirely out." I told him I guessed I would go home with him and see how things were there before I went to the neighbor. On arriving there I found his one hive set up on half-inch blocks all around from the bottom-board, while in a dish a few feet from the hive was a lot of comb that had the appearance of having contained honey an hour or two before. I asked what that dish of comb meant. The reply was, that he thought perhaps the bees did not have honey enough, so he set out a little to feed them. In a few brief words I told him that, should he leave all the doors of his house open nights, scatter a few twenty-dollar gold-pieces around by the gateway, and let it be known that he had thousands of dollars in the house, he would not expect it would be long before there would neither be gold by the gateway nor in the house; and yet he had placed his bees in the same position regarding other bees that he would be placing himself and his gold in regarding any thieves that might be prowling about, should he do as above. Without carrying this story further, I wish to say that the first means looking toward the prevention of robbing is, to know the condition of the colony as regards its numbers before any really warm days come in the spring; for if a colony is weak in numbers, that colony is almost sure to be robbed out unless extra precaution is taken. Again, if a colony is queenless and broodless in early spring, that colony is almost sure to be robbed out; and if robbing is once started on such colonies, a general row may be expected throughout the apiary. I make it a point to look at each colony some cool day in early spring to see how many spaces between the combs they occupy, the number of which is set down where I can see it at a glance, and the same thing is done with every colony before it is taken from the cellar. Now, suppose I find that the colony occupies from five spaces between the combs, upward, I call that colony a good one; and to each good colony I allow an entrance, during the spring months, say 3 inches long by ⅜ high, that being amply sufficient for any colony after they have had their first or cleansing flight. If the colony occupies only four spaces, then the entrance given is 1½ inches in length by the above depth. If it occupies only three spaces, then the entrance given is only ¾ inch in length, and I rarely ever contract an entrance to a much less space than this. It is very easy to say, "Contract the entrance so that one bee at a time can just get through," but whoever so contracts will soon find that a trouble comes in here by way of dead bees being removed from the hive, when, as such can not be drawn through this space, the entrance is clogged or stopped up entirely. If the cluster in any hive does not occupy three spaces to a sufficient amount to call it a colony sufficiently strong to care for itself, or occupies less spaces, then all the combs are taken away from it except one of honey and one for brood, and a division-board inserted, placing the comb of honey next the side of the hive, the comb for brood next this, and the division-board next the comb for brood, while the entrance, of about the size of the smallest given above, is placed at the opposite side of the hive, so that the bees, in going out and in, must travel over the vacant space between the division-board and the entrance. Fixed in this way a colony must be so weak that it is good for nothing if it does not protect itself from robbers, for robber bees do not like to travel over a long vacant space inside of a hive where they are liable to be seized by a sentinel at any time.

As proof of the effectiveness of this plan I will say that I have not had a colony robbed since I adopted the above, and it is rare that any attempt is made to rob even weak nuclei. If a colony is found queenless, supply it with brood from some other colony till you can procure a queen for it, providing it has plenty of bees. If it does not have plenty of bees, unite it with a colony having a queen. Now, if, through careless handling, or from any cause, robbing is started, I think the best thing to do first is to throw a sheet over the hive that is being robbed, fixing it all around on the ground about the hive so that no bees can crawl under it. Leave it thus for half an hour, when you will suddenly lift it from over the hive so as to let the robbers which have collected on the under side out, and the bees from the colony (shut out by the sheet) go in. Replace the sheet for another half-hour, when it can be removed, a handful of dry grass or hay put over the entrance, and another handful of wet hay put on top of this, which will allow them to dwell in peace the rest of that day, as robbers do not like to crawl down through wet hay, unless there are some coming out loaded with honey all the time, and you have stopped the loads of honey from coming out with the sheet before the hay was put on.

Now, as I said, this will stop the robbing of any colony good for any thing, where the entrance has been fixed as above; and, with one exception, if a colony will not take care of itself the next day after being treated as I have given, I would take the combs away from them, allowing the few bees to go with some other colony, rather than to run the risk of having the whole apiary demoralized by the bees, taking the honey from the hive at some time when we were not present to stop it. The exception above alluded to is where a colony may be very weak, but have a choice queen that we wish to save, but have no place to put her just at this time. Should this be the case, treat the colony to the sheet and wet hay as given above; and when night comes, carry such colony to the cellar and keep it there till you can use the queen. If you are very anxious to build the colony up, and it is strong enough to live in the cellar till the bees can gather pollen, it may then be set out and given some hatching brood to strengthen it; for after the bees secure natural pollen freely, the disposition to rob seems to leave them to a great extent.

I have been thus explicit in this matter, for there is no one thing so vexatious in the spring as the robbing of bees.

Heads of Grain, from Different Fields

UTAH HONEY; PECULIARITIES OF THE HONEY; FROM A BEE-KEEPER WHO LIVES WHERE IT IS PRODUCED.

Mr. Root:—I thank you for standing up in defense of Utah honey. I have had the same thing to contend with, especially in the mining towns, where many of the people have never seen candied honey. and imagine all honey must appear like the stuff sold in the stores, in a liquid form, dark and strong. I have often been accused of mixing sugar and lard in my honey; but the absurdity of that ought to appear. because both of these articles command a better market price here than honey. and I believe but few if any of our bee-keepers feed sugar to their bees; and to mix it with honey is out of the question.

In regard to sweet clover and alfalfa honey, there is no difference that I know of. only in the taste. Sweet clover has a taste peculiar to itself. and has a very fine flavor after it is fully ripe. All of our Utah honeys candy extremely quick, for some cause that I can't explain. My whole crop, 10,000 lbs., candied in September last year. GEO. FREESTONE.

Vernal. Utah. Feb. 12.

QUEENS LAYING IN THE SUPERS.

Friend Schaeffle, from his letter on page 150. I am afraid, has got the impression that I am somewhat skeptical about his statements. Not by any means; and I didn't know, till he arrayed them together. that I had so many times replied to him. I'm sure I have none but the kindest feelings toward him.

I don't for a minute dispute. friend Schaeffle, that honey in uncapped cells granulates sooner than that which is sealed. It always does with me. But I do think you are wrong in the opinion that "they are evaporated to such an extent that they candy." I feel pretty sure that evaporation helps to prevent candying. And I think the honey in uncapped cells candies sooner. largely because it is thinner than the rest. And if I have the right case in mind, there was something decidedly peculiar about the queens laying so much in his supers. and I'd like much to have the puzzle solved; but I never thought of doubting his statement. C. C. MILLER.

Marengo. Ill.

WHY BEES ARE NECESSARY FOR SCATTERING POLLEN.

On page 44, in reply to Dr. Miller, I will say that I think there is no place where fruit grows but that there is some kind of bee that gathers pollen. I have seen what I call sweat-bees at work on strawberry-blossoms when there was not a honey-bee in the field that I could see. I should like to ask, if pollen is not needed, why a pistillate variety does not set fruit without a staminate variety beside it; and if it needs pollen (which science and reason teach it does), then there must be something to carry the pollen from the staminate to the pistillate variety; and I do not think the wind will do the work properly. I have been in the small-fruit business (on a small scale) for the past 20 years, and have made some observations in this line, and I believe that God, in his infinite goodness, has given us the bees to perform this work.

Columbus, Wis., Feb. 14. SUPER LIFTER.

BEES ON BASSWOOD; A REPLY TO FRIEND FULTZ, ON PAGE 46.

Friend Root:—In regard to Mr. W. S. Fultz's letter, I must say that, in all my experience, I never knew basswoods to bloom, and the bees not work on them. We have basswood-trees all around us, large and small, and sometimes in the golden-basswood honey-harvest time I sit in their shade and listen to the merry hum of the bees. But some years basswoods do not yield much honey, and then the hum will be louder, for the whole force will be at work. and very few returning to the hives with honey, working all day for very little pay, as some of the rest of us mortals sometimes do. I know for a certainty that some basswood-trees never produce seed. How is that? Well. very likely some trees produce pistillate and others staminate blossoms, and the bees are needed to pollenize them. Our bees always work on our strawberry-blossoms. and often very strong. Some years our bees do not work much on the buckwheat, because the second crop of red clover blooms at the same time, and often produces more honey, and the bees prefer to work on that, and I admire their good sense; but I have invariably noticed that, when the bees fail to work on buckwheat. it produces very little grain. and the same is sometimes true of alsike clover—the bees preferring to work on wild-raspberry bloom (which abounds here) and the white clover, and then we get very little alsike seed. ILA MICHENER.

Low Banks. Ontario, Can.

THE HUE AND CRY.

Mr. Root:—You said on page [illegible] that you would leave it with your readers whether you would stop your hue and cry about the adulteration of honey. I would say, make all the hue and cry you can. If you did not say any thing against adulteration you would be for it. I believe you must be for or against in this matter; and if you were in favor of adulteration in any form, I should not like your journal as well a I do now. JOHN C. FREEMAN.

Cuttingsville, Vt., Feb. 9.

[We have received a good many other letters of similar import.—ED.]

GLEANINGS IN BEE CULTURE
A Journal devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

But his delight is in the law of the Lord, and in his law doth he meditate day and night. -PSALM 1:2.

THIS is a good deal of a California number.

THE *Canadian Bee Journal* is proving to be an excellent journal, and it can not be otherwise, because Bro. Holtermann, its editor, is putting some good hard work on it.

BRO. YORK, in the *Bee Journal* for Feb. 15, joins heartily with GLEANINGS in condemning Heddon's unreasonable glucose policy. The Old Reliable is not and never was afraid to speak the truth, cut where it may.

GOOLD, SHAPLEY & MUIR CO., the leading supply-dealers in Canada, give the improved self-hiver, modeled after the Pratt, considerable prominence in their catalog. Of it they say: "Careful tests last year go to show that the self-hiver will be of great benefit." Whatever we may say of the non-swarmer, the automatic hiver in some form, we believe, has come to stay.

THE reports show, from the heavy mails we are receiving almost daily, that the bees are wintering so far remarkably well. Of course, it is not so difficult to winter bees as to spring them. But when the bees come out of the winter in good strong healthy condition they are able to stand a hard spring very much better. A year ago, it will be remembered, there were very heavy losses, even up to this time.

IT seems as if we never had so great an amount of acceptable matter awaiting its turn to go into GLEANINGS as now. Some of it we would gladly use, but we are afraid it will be out of date, and lack interest, when its turn comes; we hope, also, that none of our friends will feel badly to see their communications lopped off at both ends. A suggestion:—Don't start out with any apology for writing, nor give any thing, in fact, except what will contain some information. Plunge into the subject with the fewest and choicest words you can command.

IT is with much surprise and regret that we learn of the death of W. J. Ellison, of Catchall, S. C. He was one of the leading queen-breeders of the country, and in years gone by he furnished us hundreds of queens. He became a subscriber to GLEANINGS when it first started, and remained with us up to the time of his death. He was a bee-keeper of considerable note, and, while not a prolific writer, he wrote occasionally for the journals. We learn from a local paper that he was a man of intelligence and education, and a highly respected member of the Episcopal Church. He had been sick for some time, but bore his sufferings with fortitude and resignation.

ADVICES from all quarters show that hard times are having a depressing effect on the honey market. Some of the finest honey in the world is now begging for a customer. The thousands of working-men now idle everywhere have no money to buy this most wholesome of all sweets, and it is this class of people who are the largest consumers. When the factories start up, as some of them are beginning to do, and their employes have paid their honest debts, the demand will pick up. While we do not propose to enter into a political discussion, it is patent to all that something or somebody is responsible for this state of affairs. Now, don't go and write us a long political dissertation on your theory, or that of any party, as to the causes; such things should be discussed in political papers.

WE now have in neat book form (16 large pages), as we promised, our Symposium on Bees and Fruit. We shall be glad to distribute these at the nominal price of one cent a copy; 50 copies for 40 cts.; 100 copies, 75 cts. Postage will be respectively 1, 13, and 50 cts. As a good many individual bee-keepers are ordering goods by freight and express, there will be an opportunity to get some valuable matter, free of transportation charges, at an insignificant cost. Believing also that these pamphlets will do great good in breaking down ignorant prejudice, we will send, free of charge, 100 copies to every bee-keepers', horticulturists', or fruit-growers' association in the country, provided the secretaries will ask for them and pay postage. We hope our readers, and especially bee-keepers' associations, will help on in the good work.

REGARDING the representations from the Standard Oil Co. (see p. 153), to the effect that we were using paraffine to make foundation, we have this day received a letter, under date of Feb. 17, very handsomely withdrawing the charge, and they promise to correct their Canadian agent, Mr. Schumacher. In conclusion they say: "We are more than glad to be set right in the whole matter, and to know what the facts are."

Later.—Since writing the above we have received a letter from Dadant & Son, denying most emphatically the indirect imputation that they were using paraffine in making foundation. It seems almost unnecessary, as they say, for them to make any such statement—or, in fact, any foundation-maker in good standing in this country.

We have again heard from E. L. Goold & Co. in reply to ours sending them a letter from the

Standard Oil Co., as above mentioned. They sent us a paraffine circular from the company; and among other uses of this substance they mention honey-comb. We have again written the company, sending them our $1000 reward card; and as we believe they are laboring under a misapprehension we have every reason to believe they will strike out the objectionable line so damaging to all apiarian interests.

In "Queries and Replies," in the last *American Bee Journal*, the question is asked first, What is the correct space *between* top-bars? and, second, correct space *over* top-bars that will give the least brace and burr combs? Of the 26 who replied, nearly half say, in answer to the first question, ¼; and to the second question, over three-fourths of the respondents say ¼ inch, and one votes for $\frac{3}{16}$. The second question, if we are correct, was asked some three years ago, in the same department, and then the majority of writers answered, from ⅜ to $\frac{5}{16}$. We were among the first to advocate this smaller bee-space; and it is pleasant to see how the eminent bee-keepers are agreeing so uniformly on this same point. Only three vote for ⅜, and three others for $\frac{5}{16}$. All the rest are for ¼ inch between the top-bars and cover or super above. We shall expect, in three or four years more, that the answers to the first question as above will be generally for ¼ inch.

Friend Hasty, the "reviewer" for the *Review*, has this to say of a recent charge that was laid at his door:

> I see an editorial note in the *American Bee-keeper*, with the signature of "C," thinks out loud that Gleanings is given too much space in these papers. Perhaps I should watch out a little more to see that I don't neglect the juniors. But I'll say this much "to wunst:" Nothing like an equal division of space among the journals can be tolerated. Readers want the most important new thoughts, without regard to where they come from. I suspect, moreover, that, if I were fairly tried by a jury of my peers, I should be found guilty—not of the crime charged, but of the opposite one—passing over things in Gleanings and *A. B. J.* that would have been promptly noticed had they come up in the younger journals.

Mr. Hasty is about right; and, while the juniors are pretty apt to have their cream redished up, it would look as if there was too much of the same yellow stuff in the two seniors for him to dish up all of it. Gleanings does not complain, but, on the contrary, feels honored for the prominence it has received by the "reviewer."

Since our editorial on page 25 was printed, regarding the old bee-books, we have received the following from Thomas Wm. Cowan:

> I see in Gleanings, page 25, you allude to an edition of Huber included in the Naturalist's Library. Have you not made a mistake about this, as the work you allude to is, I think, by Rev. Wm. Dunbar. Is not the title, "The Naturalist's Library," with hive and humble-bees colored on the front page, with a portrait of Huber facing it? The title-page following is thus: "The Natural History of Bees. Comprehending the uses and economical management of the British and Foreign Honey-bee; together with the known wild species," etc., illustrated with 36 plates, and a memoir of Huber. This book was written by Rev. W. Dunbar for Sir Wm. Jardine, and forms Vol. VI. of the Naturalist's Library. Sir W. Jardine knew nothing about bees, but Dunbar did; and as he was a friend of his, and was living in one of Sir W. Jardine's manses, he wrote the memoir and collected all about the wild bees. If you want to know any more about the book I shall be pleased to tell you what I know. I have nearly all the editions of the work and two copies of one or two of the editions.
>
> Thos. Wm. Cowan.
>
> London, Eng., Jan. 20.

We find, upon investigation, that the book referred to by Mr. Cowan is similar to the one we had in review, but the two volumes must be different ones. Ours is No. 7 of the Naturalist's Library, and contains no reference to the persons named by Mr. Cowan.

THE MINER HIVE.

On page 55 we asked whether any of our readers knew any thing about the Miner hive. In answer to that question, Mr. H. L. Jeffrey, of Woodbury, Ct., sends us a copy of an old bee-book entitled "The Bee-keeper's Chart," published in 1855, in New York. It was written by E. W. Phelps. Friend Jeffrey sends us the book because one of our most prominent bee-keepers denied the existence of any such work some years ago. It gives a description of the Miner equilateral cross-bar hive. Mr. Jeffrey says he has used such a hive within the past 15 years, and with very good results. It might in some respects be considered the forerunner of the Langstroth hive. On page 33 of this book the author speaks of "storifying and subtended hives." If the description of this idea was not the forerunner of the tiering-up idea it is because it is the thing itself. In some respects it foreshadows the sectional brood-chamber.

CONFUSION IN THE USE OF TERMS.

Some of our best correspondents are confusing, in their writings, the words "swarm" and "colony," and oftentimes it is difficult, because of this confusion, to determine in our corrections just what term should be used. "Swarm" means a collection of bees that either are now on the wing in the air, or clustered on some limb of a tree, or have recently been hived in their new quarters. "Colony" means the same collection of bees before or some time after the swarm-act takes place; that is, it is a stock of bees that has finally assumed its normal functions. If our correspondents would be careful in their writings to make these distinctions it would sometimes save us a little trouble, because we always feel obliged to make these changes whether the writers do or not, before the articles finally appear in print. It is true, that Webster's Unabridged and the Revised International make the same confusion; but years ago, Mr. Newman, then publisher of the *American Bee Journal*, recognized the need of more accuracy in the use of terms, or limiting the use of said terms to more specific uses. He set the ball rolling, and we believe the publishers of the better class of bee-journals have followed suit ever since. The new Standard Dictionary, that promises to eclipse the International, will have these terms correctly defined.

FEEDING BEES SUGAR TO HAVE THEM MAKE IT INTO HONEY.

THE absurdity of this idea is shown on page 193, for sugar in Utah costs a good deal more than honey; and, in fact, I do not believe there is a locality anywhere, where a bee-keeper can *afford* to feed his bees sugar. Fair crops of honey are to be had in almost every locality, and during almost every season, without feeding the bees any thing. Now, think of the expense, to say nothing about the trouble of going to work systematically to feed the bees sugar. The statements that have been in print, advising or condoning the feeding of sugar to make honey, is responsible in a large measure for this. There are plenty of real wrongs to fight, without hunting up imaginary ones.

A. I. R.

LANGDON NON-SWARMER A SUCCESS IN NEW ZEALAND.

IN the New Zealand *Farmer*, published at Auckland, for December, three writers in the apicultural department speak very highly of the Langdon non-swarmer. Indeed, it seems to be a success with them in every sense of the word. One of the writers, Mr. C. A. Green, summarizes the advantages thus:

> 1. With the use of the Langdon non-swarmer, swarming can be reduced to a minimum, if not altogether abolished.
>
> 2. The full force of workers being thrown into one hive, surplus honey can be obtained earlier in the season.
>
> 3. The first sections will be better filled than those from off single colonies, on account of the great force of workers.
>
> 4. With it bees may more easily be united, I think, without so great a danger of fighting.
>
> 5. Hives on which are non-swarmers speedily reduce the number of drones in the hive.

We have had some good reports in this country. Is it not quite possible that it was condemned just because of a few unfavorable reports? Let's not kill a good invention, one that promises so much as this, without giving the implement a fair trial. Let Bro. Taylor test the Langdon again, constructed as Mr. Langdon now recommends.

OUR NEW CONTRIBUTOR, MR. MATHEY.

WE would call special attention to the article on Dr. John Dzierzon, by Karl R. Mathey. It is well written, and is a just tribute to one of the great bee-masters of the age. and our Mr. W. P. Root has made an admirable translation of it.

A good many times we Americans settle back on the idea that every good thing in apiculture originated with us; that the movable frame was fathered by Langstroth. Not wishing to detract any thing from the glory belonging to the father of American apiculture, it is but just to say that Langstroth did not bring to light, strictly speaking, the movable frame. He did invent, however. a frame that had bee-spaces between the end-bars and the ends of the hives, between the bottom-bar and the bottom of the hive, and between the top-bars and cover, or super, above. His, perhaps, was the first *practical* movable frame. but it was not the first. Making frames or racks containing comb so that the brood-frame or comb could be examined, is an invention that properly belongs to Huber. Then followed Langstroth, later on, with another great and important step; namely, putting a bee-space *clear around* the frame. Strangely enough. some bee-keepers now are giving up part of the bee-spaces, and using the frames more as first used by Berlepsch and Huber.

The old adage, "The bees stung him *smart* in his youth," while possibly old to the Germans, will, we imagine, strike the ears of an English speaker with more or less of newness. Perhaps a few bee-keepers in this country have been stung *smart* in two senses of the word, and we might refer to father Langstroth and father Quinby. By the way, the Quinby idea of a frame seems in these latter days to be gaining advocates.

BISULPHIDE OF CARBON FOR KILLING ANTS, RATS, AND SKUNKS.

OUR readers will remember, some years ago Prof. Cook recommended the use of bisulphide of carbon to get rid of ants' nests near hives or elsewhere. The plan he recommended, if we remember correctly, was to take a crowbar, or other similar implement, and make a hole a few inches deep in the center of the nest, and then pour in an ounce of crude bisulphide of carbon, after which tamp the hole tight with a plug of earth. A gas is at once generated that will work its way through the winding passages and asphyxiate every ant.

In the last number of the *American Bee Journal*, A. C. Tyrrell tells us that the same chemical may be used to get rid of prairie-dogs, skunks, and other burrowing animals. As rats often prove to be a great nuisance in the vicinity of honey-houses, it may be well to describe the plan. A few tablespoonfuls of bisulphide of carbon are poured on to a bunch of rags or waste. It should be placed immediately in the mouth of the burrow, and the burrow at once closed. As the vapor is heavier than air it will descend to the lowest part of the burrow, and very speedily asphyxiate the animal. Now, the beauty of the whole thing is, that the rats, or whatever the varmints are, are not only quickly killed, but are buried in a grave of their own making; and, unlike the use of poisons distributed around promiscuously, there is no smell arising from dead rats in inaccessible places under buildings and elsewhere. Mr. Tyrrell tells us that whole villages of prairie-dogs have been depopulated with the bisulphide. Not only can rats and prairie-dogs be sent to the happy burrowing-grounds by the B. Carbon Route, but skunks, ground-squirrels, and musk-rats. Bisulphide of carbon costs at the drug-stores about 40 cts. a pint, and a little of it goes a good ways.

DISCUSSING BEE-PAPERS.

The following appears in the last *A. B. J.:*

> Discussing bee-papers at conventions is an idea mentioned in one of the January *Review's* editorials. Here is what Bro. Hutchinson thinks about it:
>
> Bee-journals are seldom discussed at bee-conventions, there being a feeling that it is not good taste—that the commendation of one journal is a reflection upon the editors of the others. Hives, smokers, honey-knives, comb foundation of the different makes, non-swarmers, self-hivers, in short, every thing pertaining to bee culture, are freely discussed, with no consideration whatever for the feelings of the inventor or manufacturer. Where is the consistency?
>
> Then, again, one journal may excel in one particular, another in some other direction, and bringing out these points might not be any disparagement to any journal, yet would aid bee-keepers in their choice of journals. The idea that a bee-journal, or some feature of it, must never be commended, criticised, or discussed in a convention, is more a fashion than one of good sense.
>
> Now, here's a chance for an honest difference of opinion, and we dare say that Bro. H. stands almost alone in his view of the matter. Of course, that's all right; *we* stand nearly alone sometimes, but this time we think the majority are with us.
>
> Judging from that *Review* editorial, bee-papers would be fit subjects for experiment stations to test, the same as any other bee-keeping utensil or necessity. Now, we'll suppose all of them were sent to the Michigan station to be tested. Bro. Taylor would begin the work, and he'd find that the *Review* is the only one that publishes his reports of experiments, or those that do copy them won't give what he considers proper credit; therefore the *Review* is the best bee-paper—for Bros. Taylor and Hutchinson. Certainly, no one would question that.
>
> Brethren, we are ready at any time to have the *Bee Journal* discussed with the rest, but what good would come of it? You might as well discuss the character of John Jones, or Mrs. Grundy; but what would be gained in so doing?

When the item first appeared in the *Review*, we called to mind how unfavorably the discussion of bee-journals was received at conventions we have attended; particularly at the Keokuk meeting of the North American. The *average* run of bee-keepers feel that they are not competent to make suggestions regarding the editorial conduct of a bee-journal; at least, so say our readers. While they can run a bee-hive—are able to judge of its merits or demerits, and how it should be constructed, they do not feel the same "at-homeness" on the bee-journal question. But why is the subject offensive? Perhaps because they think the desire to have journals discussed is accompanied by the desire to have some particular periodical boomed. While the same might be partially true of hives, the fact is, any one hive of merit can be made by a score of supply-dealers (if not patented); in fact, can be made by any bee-keeper possessed with mechanical talent; but there is not one bee-keeper in a thousand who can make a good bee-journal. In saying this we do not wish to be construed as believing that Bro. Hutchinson wants to boom his paper at conventions.

MR. HEDDON AGAIN, ON GLUCOSE ADULTERATION.

On page 104 we criticised Mr. Heddon for certain utterances of his at the Michigan State Bee-keepers' Convention. Now that the full text of his paper, as it appears in the *American Bee Journal*, is before us, it would be no more than right to publish just exactly what he does say. It will be unnecessary to give the whole paper, but only that portion of it which we especially criticised. Here it is:

> The Bee-keepers' Union was organized for defense of bee-keepers, and it did its work nobly; but last year a few believed it to be best that the Union should attack its own members with the cry of "adulteration." It would seem to me that any bee-keeper with any foresight could readily perceive that in no case could the Union, nor any other organization, nor any person, do aught but make trouble and expense, at the same time damaging the interest of honey-producers to the exact extent of their work. I believe the above would be true even if it were a fact that honey-producers were adulterating honey. If it were a fact, it would be one which we couldn't afford to have heralded to the public, as would result from public prosecution. If my neighbor bee-keeper is adulterating honey, he will very likely injure himself far more than me, for nothing does so much good, nor aids him so much in his business, as always to place upon the market a *first-class* article. The converse of this proposition is true. Now, if my neighbor's adulterated article doesn't injure *his* trade, it will not injure mine, only to the extent that his work increases the supply, and I haven't heard any bee-keeper, whether he belonged to the Union or not, endeavoring to prevent increase of supply by objecting to the encouragement of persons to go into the "bee-business."
>
> I am not afraid of my pursuit being injured by the practice of any individual member, said practice damaging the individual first and most. But waiving this part of the argument, all the damage that has been claimed, or that can be conceived, is nothing as compared to that produced by inflating the mind of consumers with the idea that our product is generally adulterated.

[He next pays his respects to Prof. Wiley, and then adds:—Ed.]

> It has been left to the envy, jealousy, and hatred of supply-dealers and their followers, to announce to the honey-consuming world that the label of "the producer is no guarantee of purity."* This they have done by inciting arrests in isolated places; by writing letters to private individuals who would spread false reports; by writing articles in bee-papers which are being eagerly copied in newspapers, and, last, by publicly changing the constitution of the Bee-keepers' Union so that it may have the right to attempt what in no case could it have the power to accomplish, and which can and does end in nothing but casting suspicion upon our product. All the bee-keepers' unions this side of

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* If there is a dealer who "has announced to the honey-consuming world that the label of the producer is no guarantee of purity," we did not know it.—Ed.

> fairy-land couldn't stop one little honey-producer from adulterating all the honey he might be fool enough to attempt to adulterate in 300 years.

After reading the above we can not see that we have misinterpreted, on page 104, Mr. Heddon's views. Our comment on the same will be found on that page. We are sorry to take any more space; but perhaps we ought to say, in addition, that bee-keepers are not so stupid as not to be able to "read between the lines." We may say, further, that, if the change in the constitution of the Bee-keepers' Union, for the purpose of enabling that body to prosecute adulterators of honey, is both unwise, and amounts to nothing, because it is unable to cope with the evil, as Mr. Heddon tries to make us believe, *why* does he raise such a *furore* about it? Is he afraid "it is loaded" and might go off? If he isn't, then why does he prejudice our pursuit by referring to it? Again, he says, "All the Bee-keepers' Unions this side of fairyland can not stop one little honey-producer from adulterating." We presume Mr. Heddon would be very glad to have every one believe that. That being the case, glucose-mixers could go right on unmolested, because, forsooth, nobody would touch them. To defend—that is to make it easy for glucose-mixers to pursue their business unmolested—is *almost* as bad as to adulterate itself.

We regret exceedingly the necessity and duty that compel us to criticise such utterances from a bee-keeper—heretofore one of the foremost in our ranks; but we do not see how we can conscientiously let such a thing go unchallenged.

SOME MORE SENSATIONAL FALSEHOODS.

THE following is a clipping that appeared in the St. Louis *Republic*, of Feb. 5th. Along with it is a cheap picture of a man dressed like a baker, handling some suspicious-looking tools with which he is making some artificial comb *by hand*, filling it with glucose, and capping the whole over. Here is the clipping:

> To those who have a taste for honey on their breakfast flapjacks, it has been a constant source of wonder as to where and how the immense quantity of honey sold in grocery stores and confectioners' shops is produced. That the busy bee is not responsible for the production of the major part of it is a fact that was demonstrated before the eyes of a *Republic* reporter last week. Ordinary wax is pressed into a long flat sheet, and indented with cells, and these cells are filled with a cleverly constructed mixture of sugar, water, syrup, and glucose, with just the least touch of pure honey to give the body a flavor. In the hands of the uninitiated it would readily pass for "comb" honey, and in its appearance and flavor it so closely resembles the real article as to confuse the best of apiarists at times.

We challenge the St. Louis *Republic* to furnish the proof of its alleged bogus honey. We venture the assertion that the *Republic* roporter never saw the operation he pictures out, except in his own fertile imagination. If he will produce the proof that artificial comb honey is made so that "in its appearance and flavor it so closely resembles the real article as to confuse the best of apiarists at times," we have $1000 waiting for him. In fact, we have for years back, as our readers know, broadly advertised, and are not only able but willing to pay that sum to any one who will furnish us samples of bogus comb honey that can not be told from the genuine. Many and many a time we have written personal letters asking these sensational reporters to produce the proof and get their money; but we never succeeded in getting another word about it, and the reporter for the *Republic* is probably one of the same ilk. Now, unless the *Republic* can furnish the proof, before our next issue, or apologizes, it will stand before bee-keepers as one that is trying to give currency to a falsehood.

It may be well to suggest that the reporter possibly saw sheets of foundation made in a foundation-mill, and, jumping at the conclusion that these sheets would be elaborated by machinery without the help of the bee, into perfect comb, filled with glucose, and capped over, he immediately tries to flame it before the world.

One thing more. Our stenographer, who is also a printer, calls our attention to the fact that the clipping in question, with its cheap picture, is what is known as "boiler-plate matter"—that is, it emanated from a place where sensational news items are set in type, and stereotyped, and sold by the column to hundreds of papers at a cost that is insignificant That being the case, this slander will probably go the rounds through all the American papers. This is what has given such a hold on life to this same stupid story for the last dozen years.

We do not believe in concealing cases where we *know* there is actual adulteration of extracted honey with glucose; but we do not propose to go to the other extreme, and keep still, where our industry is maligned in this fashion.

BAIN COME TO GRIEF.

THE notorious Bain, of Zanesville, O., and surrounding postoffices—he who pushed the black-pepsin fraud and ever so many other frauds under various aliases (see page 890, 1892)—has finally been fined $500 and sent to prison for three years for using the U. S. mails for fraudulent purposes. I wonder if the other black-pepsin people will take warning. If they do not, they had better be sent along with Bain on the double-quick. When Bain was shut out from the mails of Zanesville he opened up again at New Concord, and at postoffices at different places as near Zanesville as he could make it without patronizing the Zanesville postoffice.

A. I. R.

VENDERS OF COUNTERFEIT MONEY.

EVERY little while these circulars come to us from some of our subscribers. Each one is accompanied by the usual clipping from some newspaper—that is, it is an *apparent* clipping. But the clipping is a swindle as well as the rest of it. It is to the effect that counterfeiters are getting to be so skillful that even the government experts can not tell the true from the genuine. Of course, it is all a humbug. Here s a letter that came with one of the circulars from one of the Michigan friends:

> *Friend Root:*—Inclosed you will find a letter from New York concerning counterfeit money. A friend of mine here handed it to me. He did not know what to make out of it, and he did not know how that man got his name in New York until I told him how they got it. I hope noue of your readers will get caught ta it, because I know of a man only 2½ miles from here who got a small box of sawdust for his money. HENRY WILLING.
>
> Chesaning, Mich., Feb. 17.

Friend W., then you really have a man within only two miles and a half of you who *tried* to engage in the sale of counterfeit money. Well, he and his family may be devoutly thankful that he got only *sawdust* when he expected to get counterfeit money. Of course, the government can not get hold of them, for the men who send out these circulars do not have any counterfeit money at all. They make their living off from men who have so little of the fear of God in their hearts that they *would* engage in counterfeiting if they could; and the men who get swindled never complain, for how dare they let it be known that *they* were actually counterfeiters at heart? The remedy for this whole business is to teach all mankind that the way of the transgressor is hard. I believe, however, that the government detectives are doing all they can to ferret out and punish these men, even if they *are* only "make-believe" counterfeiters.

MAKING A PATENT-MEDICINE BULLETIN-BOARD OF THE FARMERS' FENCES, BARNS, ETC.

I SUPPOSE that, if a farmer agrees to the above, or sells the right to the patent-medicine man to "decorate" his place, it is all right; but it does seem to me as if the farmer might almost as well sell his good name as the right to decorate his property in this way. Here is what a recent *Rural New-Yorker* has to say in regard to the matter:

> We do hate to see a farmer's barn or fence turned into a sign-board to display the merits of somebody's "bitters," liniment, or tobacco. It does seem as though a farmer should have more pride about him than that! This nuisance is so bad in England that there is a bill before Parliament to prohibit the erection of these signs in pretty rural places.

THE BOY WHO HELPS ME IN PUTTING UP THE PIPES, ETC.

Mrs. Root scolded so much because I made public mention of Harold's forgetfulness, in our last issue, that I thought best to mention some things that I neglected just then and there. In the first place she says I did not sufficiently explain that Harold is only a boy, and we can not expect boys to have a man's forethought and wisdom. Secondly, he is a very bright, intelligent, and skillful boy for one of his age—so much so that I really raised his wages the very week he forgot to open the big valve; that is, there are enough good things about his work to overbalance the other to such an extent that I felt he *should* have a "raise." Another thing, when that large pipe was set down in the clay so as to plug up the end of it, *I* was right on the spot at the time; and as *I* did not say any thing about lifting the pipe up or reaching down into the end to see that it was not plugged up with mud, I could hardly expect the men who were lifting the pipe to do so; therefore the stupidity of setting up a pipe to carry exhaust steam, while it was plugged with mud, rested mainly on the shoulders of *A. I. Root.* Still further, there is *lots* of stupidity about my work, as perhaps some of our helpers can bear witness. Yes, dear friends, I know it, and I did not mean to exalt myself while I was finding fault with others. What I mean is this: We are learning —all of us; and even though I am 54 years old I expect to be a "heap smarter" when I am 55 than I am to-day. It is not such a terrible crime to be stupid, if it is true that we are every day making progress *out of it.*

GOOD INVESTMENTS.

THERE are two things I feel specially happy over this morning. That automatic greenhouse across the way, with every thing inside just pushing ahead to my perfect satisfaction, is one of them. The other thing is the good substantial sound clean teeth that I am enjoying in place of the ragged, rickety, sharp-cornered things that I tried to use three months ago. Every little while I strike my teeth together with a feeling of satisfaction; and when I eat my meals I take pleasure in doing good work with a perfect set of efficient tools. I am specially pleased to see how nicely they have *gradually* adapted themselves to each other until they now strike all at once; and there is a feeling of strength and power and safety in regard to them. They can not break, because the working surfaces are of gold coin. They can not ache, because there are no holes nor hollows for food to get entangled in, and it is a pleasure for me to keep my mouth clean and sweet. I am really ashamed to think I put up with the old state of affairs as long as I did.

A. I. R.

A SUBSTANTIAL KIND WORD.

You may put me down as a life reader for GLEANINGS. Seven years ago I started with one colony of bees, and now I have 69 stands in good shape, and have produced $600 worth of honey. When I commenced reading GLEANINGS I had poor health; and the more I read your paper the better health I am getting. THOMAS OBERLITNER.

Deshler, Ohio.

OURSELVES AND OUR NEIGHBORS

BY A. I. ROOT.

Wherefore do ye spend money for that which is not bread, and your labor for that which satisfieth not?—ISA. 55:2.

The train was behind time. Just ahead of me we were to change cars, and there was only five minutes' time to make the connection. I asked the conductor if he could not telegraph ahead to have them hold the train a little, and he said he had done so. Just as we were slowing up at the depot, however, the train on the other road was just getting under motion. Had I jumped off from our own train before it was stopped, and climbed on while the other was under way, I think I could have made it; but I do not like that way of doing business; and I could hardly think that, after the train had waited so long, they would start out just as we came up. So it was, however. Somebody said the two roads were at odds and ends, and that they did things like this just to spite each other. Dear me! is it true that great railroad companies do such things *purposely*, without any regard to the trouble, expense, and disappointment they make the traveling public? I hope not; and I tried to think they had some other reason that I did not know of for refusing to wait just one minute more. There was quite a number of passengers besides myself who expected to take that train; and some of them did not hesitate to use bad language in expressing their disappointment. I thought I would try to set a better example; but when the landlord told us there would not be another train for four hours, and the four hours must come out of the middle of a bright sunshiny day, I confess I forgot myself so far as to say, "Do you mean to say we have nothing to do but to wait here four hours more?" Somebody suggested a livery rig, as we wished to go only 17 miles; but the landlord said that, in the condition the roads then were, the livery would get there but little if any before the train we were waiting for.

"I will tell you," said one of the strangers. "Have the landlord bring us a table, and you sit down here and play pedro with us, and the four hours will pass away so quickly you will hardly know when it is train time."

Now, may be some of you may think me dull if I tell you I did not know exactly what sort of game "pedro" was. I felt pretty sure, however, that it was a game of cards, and so, of course, refused. In fact, I should have refused *any* sort of game under the circumstances, unless it had been riding a wheel, skating, or some similar exercise in the open air, that would bring some substantial equivalent for the time and strength expended. The landlord promised a table, and told them he would play with them when he could spare the time; and as I looked into the men's faces, and listened to their talk, I began wondering how it was possible that smart, able, intelligent men could sit down inside of a close hot room, when the sunshine and hills, and the river and canal, and all such attractions, were to be seen outdoors. Another thing, my thoughts ran something in the line of our text. How is it possible that men should deliberately labor for that which satisfieth not? Some of you may say that, even if it did not satisfy me, it might have satisfied *them*. I do not believe it. I do not believe the satisfaction they get from pedro can be compared with—well, I will say with the satisfaction I felt pretty sure I should find during the following four hours. In regard to spending money, I do not know whether they spend any on pedro or not. I fear they do sometimes, however. They spend strength and a part of their lives, the best part, right in the middle of the day, and right after dinner.

We had an excellent dinner, and I took pleasure in telling the despondent-looking waiter that I thought so. It lightened up her face with a smile that reminded me of the sunshine outdoors; and when I told the landlord that I felt grateful to him for giving me such a nice dinner, and so promptly that I did not waste an hour, nor was obliged to lose even five minutes, he smiled also, and said it did him lots of good to know that his patrons appreciated his efforts. Why should I be in a hurry to get to work, stranger as I was, in a strange place? How did I know, in fact, that I should *find* work or play either? Well, I knew from past experience. By the way, my friends, when you are obliged to wait for a train under similar circumstances, do not, I beg of you, yield to the temptation to say there is nothing to do, and sit down idly. If you can not do any better, you can read something. Yes, in this land of ours you can find something to read, and you can find something good in what you read, no matter where circumstances let you drop.

I did not expect to stop at Uhrichsville at all, so I did not look, before starting, for old friends among the bee-keepers at this postoffice; but I think I have never been dropped in a place where I did not find *somebody* who felt glad to have me call. I asked of several people about bee-keepers, but they said they did not know of any around there. Finally I began to inquire where honey was sold. After stopping at the third grocery the keeper told me there was a man who kept a great many bees, and had kept them for years, five or six miles off over the hills. His name was Wardwell. The roads were rather bad, and there was not any other way to get there and back without going on foot—that is, no easier way; if it should happen to be six miles or a little more it would take a great part of the four hours to get there and back. But I remembered my friend Wardwell as one of our old veterans in bee culture. As I read only a limited part of the mails of late, I had somehow lost track of him. As I got off in the direction of his home, people knew more about him, and I was agreeably surprised to find it only three miles instead of twice as many. And, oh such glorious hills! It was California back again on a small scale; and between these hills were springs and babbling brooks. My heart felt light, and I was happy, long before I made the three miles. A little this side of friend Wardwell's home some men were mining coal. These hills about Uhrichsville are full of coal. Now, how do you suppose they got the coal out of the mine? To save expense, the opening was not high enough to enable a man to stand upright. He had to walk stooped over; but to facilitate getting out the coal, a track was laid, and a little car ran on it that carried the load. A man might push it, but they did better than that. They had a good stout *calf* educated to pull the car. I watched him curiously as he came out of the ground right below the road where I was standing. He took it as a matter of course, marched up to the dumping-off place, and of his own accord turned off into a sort of side stall out of the way while the man dumped the coal. I afterward learned that the calf was getting to be so tall that his back scraped on the ceiling, so they were either obliged to educate another calf or raise the roof. The former would probably be the cheaper way. And just beyond I found the home of F. J. Wardwell, one of the ld veterans in bee culture, an old contributor o Gleanings, and he is the man who has in ears past furnished us such nice queens, with he water-bottle to give them drink on their ourney. When we have orders for queens long istances, we pick out the cages containing the ater-bottle.

Friend W., and his wife and boy, are living n the old homestead. I for one have an espe-ial liking for old houses. I like to see the uildings that gather around them as the years o by; I like to see the old trees, and the other hings that indicate that the place has been a *ome* for a generation or two. Sure enough, a eautiful spring poured out of the hillside right lose by the dwelling, and a hydraulic ram ends the water not only into the kitchen, but ut to the barns and stables, and away up into pasture-lot on the hillside. Mrs. W. told me hat, if I had not suggested the machine in my ritings, they probably would not have had it. lthough it does the work beautifully, it cost nly $9.00 for the machine itself. The piping nd reservoirs cost a good deal more. At the ther side of the house were the strawberry-eds, just such as Gleanings had talked about, nd up on the hillside were raspberries; and tell you it was refreshing indeed to know that ll the things I have talked about and thought bout had been worked out and made a success n that home amid the hills. The strawberry-atch gave them 125 bushels last season, and hey were sold to a grocer for $2.00 a bushel, ight straight through. This was not a very ig price, but they were all sold without any rouble or peddling, and the money for the trawberries paid the last of the mortgage that ad been for years resting on the old homestead. soon told friend W. that I was on my way to ee another friend, and without much urging e consented to go with me. I knew before I eached that home, that, although bees and trawberries, and springs and other things, vere interesting to friend W., there was some-hing of more importance than all these, on vhich he and I could entirely agree. I knew hat he and I could agree pretty nearly about pending money for that which is not bread, nd *laboring* for that which satisfieth not.

We had some long pleasant talks on the way o Newcomerstown. Oh, yes! do you want to now what I was going there for? Well, if ou will look back in Gleanings for last year, age 536, you will read about the man who sold 300 worth of strawberries in three weeks; and is daughter, 14 years old, and his son, 13 years ld, ran the wagon and did the selling. You ee, friend W. was interested as well as myself. We found our friend Nicodemus busy steaming p and tucking up his hot-beds and new green-ouse, for a cold wave was coming. He had just moved on to a new place; and as his green-ouse had been put up almost in the depth of winter, he especially wanted to see me, because is steam-heated hot-beds were too hot where he steam went *in*, and too cold where it came *ut*. Now, we have had little or no trouble on this account. With exhaust steam it takes quite a little while for the steam to get through the tiles; but when the ground gets well warmed up, the temperature seems to be pretty nearly equal, even in beds 200 or 300 feet long. He says he has been told that live steam can not well be made to do its work as well as xhaust steam. The exhaust goes in regular puffs—just so much and no more; and if let into pretty good-sized tiles, it slowly parts with its heat in a somewhat different way from what live steam does, even if it is let on very slowly. The tomato book, however, suggests a remedy; that is, to have your tiles further under ground, where the steam is just going in, and then let them rise quite near to the surface, where the spent steam escapes near the end.

The son and daughter mentioned were both wide-awake, and fully alive to all that the father and mother were interested in. Oh how I do love to get a glimpse of such a home! and when this brother and sister sang some Sunday-school hymns for us, accompanied by a pretty little organ, it seemed to me that such a home and such a household came about as near to heaven here on earth as any thing I have ever found in this world of ours. Why, I really believe I would give more to hear those childish voices sing those hymns—those very same hymns—over again than to listen to the finest concert I ever attended. Of course, the circumstances and surroundings had something to do with it. I had talked with the children about their berry-growing, their market-wagon, and about selling stuff to their neighbors. We discussed bees, strawberries, greenhouses, steam-pipes, lettuce-plants, and all these things. I was a little afraid that these *young* friends of mine might become so much interested in business that there would be a tendency to neglect their education. The mother gave me a grateful look just at this time, while she said she had the same thing in mind; and then I was a little afraid, too, that this bright, pretty young girl (I hope she will excuse me when she reads this, for she knows Uncle Amos means "handsome is as handsome does")—well, to go back, I was a little afraid that, if she were to keep on selling berries at the rate of $100 worth in a week, she would be getting into business so much for her tender years that the coarse outside world might, some of them, be a little presuming. Her brother always goes with her, it is true; but if she is going to continue in this business, if she were my child (and in one sense she is, for she is one of the Gleanings family) I believe I would rather have her father not very far away at least—that is, if she continues to grow in grace and wisdom.

You should have seen the look upon all around when I told them I must be off on the evening train in order to get home a little after sunrise next morning. But February is a busy month with us, and I felt that I could not be away longer.

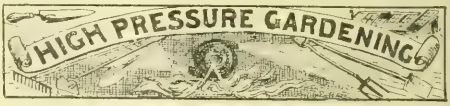
A little of friend Nicodemus' experience may interest you. He used to be a mason by trade; but it took all he could earn to furnish food and clothing for the little family, let alone laying up any thing for the rainy day—an outlook that now probably troubles a *million* or more of the wage-earners of our country. He got hold of Gleanings, and commenced keeping bees. I wonder if he will excuse me if I say right here that he used to be a swearing man. Gleanings suggested something different and something better. Now not only himself but the whole household are Christians. With the bees they took up gardening, and he looked forward to the time when he could make enough with his berries and plants and vegetables to stay at home and work *with* his wife and children all day, and not be obliged to hunt up jobs. He bought an acre or two. God heard his prayers, and prospered him; and the children took hold of the work, as you have been told. His daughter had been teasing to plant five acres of strawberries. I said, no—at least not just yet; and I think his better judgment also said no. He knows—in fact, they all know—that worldly prosperity does not satisfy.

Some one may say right here, "Well, Bro. Root, what *does* satisfy? How shall we pay out money to get this satisfaction you talk about?" I am glad to hear that question. In the first place, you want to have a *home*. You want a wife and some children. And next, you want to be *with* them. If possible, get into some employment where all of you can be partners. Have the children members of the firm. Spend your money in bringing them up in the fear of the Lord. Spend your time in laboring for that home and that little household. Have a pleasant sitting-room, nicely warmed and nicely lighted. Have some sort of musical instrument—in accordance with your means, of course, and then have home concerts. If you do not agree with me that the sound of these childish voices, united in singing praises to Him who rules over all—if you do not agree with me that these things satisfy, and are the *real substantial* bread of life, then I shall be mistaken. "*Blessed* is the man that walketh not in the counsel of the ungodly, nor standeth in the way of sinners." "*Blessed* is the man whose delight is in the law of the Lord," and who makes it his foremost business in life to *teach* that law to the children of his household. What would be the effect on this nation of ours if every man were so doing, instead of spending his hours in playing "pedro," and his money for choice brandies that he may drink all by himself, and pass them around to his fellow-travelers? "Thou hast loved righteousness and hated iniquity" is what the great God above said of Christ Jesus the Son of God. O my brother, will you not strive harder, so that, when God looks down into *your* little home, he may say of you, when he sees you with your family, "Thou hast loved righteousness and hated iniquity"?

In order to get an early train next morning I was obliged to be up and have breakfast some time before daylight. One of my companions of the day before was also obliged to take this early train. I do not know whether he was the very man who asked me to play pedro or not; but he was certainly one of that class. He was very pleasant and courteous. He even presumed to extend a dainty little glass while he held a long black bottle over it and urged me to take a drink. Said he, "I always take one before breakfast. Don't be afraid of it, stranger—it will do you good. It is terribly cold outdoors. The landlord says it is the coldest night of the winter. You had better have it to guard against the effects of the cold." I shook my head as I looked at him, and then my conscience began to chide me because I seemed a bit backward about showing my colors. I ventured a gentle remonstrance, and then told him my name and place of residence. He put his bottle away rather hastily, I thought. I do not know whether he felt as though he ought to apologize or not; but I heard him say, a few minutes later, "Landlord, do you know whom you have got here in your house?"

The landlord replied in some complimentary way that I need not mention here; and then my friend made some further remarks that ought to have satisfied almost any one. But I did not feel satisfied. I kept thinking of the words of our text. Why do men spend money for that which is not bread? and labor for that which satisfieth not?

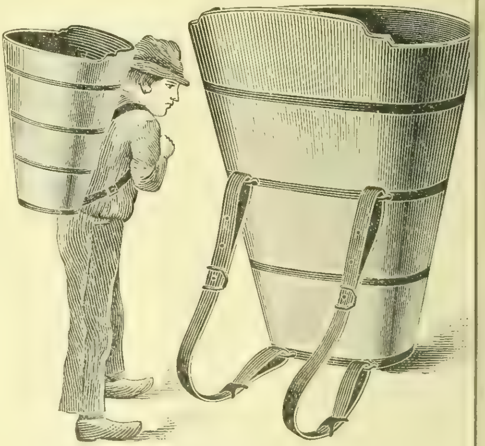
We had a very nice breakfast again, notwithstanding the earliness of the hour. And now *I* too felt thankful. My fellow-traveler, however, complained that he could not take any comfort so long as that baby kept crying; and even though he saw a look of pain on the mother's face as she waited on us—it was the same face that gave me such a glimpse of sunshine at dinner the day before—even when he saw this look of pain he did not hesitate to grumble, and kept inquiring if something could not be done to *make* the baby stop crying. If the kind of drink he had just before breakfast had any thing to do with the fact that he could not be comfortable because there was a *baby* near, i will be an additional reason to me why I never want any thing of the sort. Is it really true that a world of people are living and *dying* without having had even a *glimpse* of the bread of life or a glimpse of that which satisfies beyond any thing in the way of food and drink this *world* can furnish?



HIGH PRESSURE GARDENING

A WHEELBARROW WITHOUT WHEELS; A GARDENER'S IMPLEMENT FROM OUR GERMAN FRIENDS.

Among our German helpers is one who used to be a cooper in the old country. During a dull time last fall he made up some queer-shaped tubs, or barrels, like those used in Germany; and putting one on his back he came around to exhibit it to our German gardener. It made the faces of our German people light up with fond remembrances as soon as they got their eyes on it; for, in fact, it was a familiar object away back in Fatherland. My good helper, Ben, informed me that, in the old country, every family has such a tub, or bütte, as it is called in German. See the picture below. Our engraver has not shown the tub sufficiently flattened, especially the one that is on the back of a sturdy gardener. Sometimes a cushion is added to make it easier where it strikes the body; and the tub is really broad enough so it strikes the shoulders, thus preventing it from swinging about while being carried with a load.



A GERMAN BÜTTE.

A good deal of their gardening, where land is scarce and high-priced, is done on the steep hillsides, and even up into the mountains. I have told you about some German friends of my boyhood, who used to make garden in every fence-corner, and, in fact, on every square yard around their home. Beds of flowers and vegetables were everywhere. In fact, they occupied every *foot*, leaving only narrow pathways to get through. Well, in Germany, where they garden in this way on the hillsides, they use these tubs to bring in the crops, to carry manure where teams can not go, and, in short, for all sorts of work of this kind. We have one which we use in bringing parsnips from the field when it is too muddy to run a wheelbarrow, and we expect to use it to carry sand, manure, etc., into the greenhouses. By putting on a cover it strikes me it will be just the thing for carrying Bordeaux mixture, Paris-green solutions, etc., for spraying the crops. Attach a rubber hose to the bottom, and then put a hook on the other end, close by the sprinkler. When you want to stop sprinkling, hook the nozzle over the side of the tub, and not a bit of liquid will run out. Unhook it and hold it over the potato-vines, and there you have a knapsack sprinkler with larger capacity, perhaps, than any in the market. Should the liquid be going too fast, squeeze the rubber tube in your hand. A rather soft, pliable tube will be needed for this purpose. The only thing we lack is an agitator to keep the liquid stirred up so the chemicals will not sink to the bottom and make it too strong. Perhaps the "sloshing about" as it is carried around on the back will agitate it enough. I wish our friends Green, at the Experiment Station, would tell me about this. We have got a machine mounted on a cart, for carrying spraying-liquids, but it is tremendously hard work running the cart through our soft fine market-garden ground, and the wheels do too much mischief when the potatoes are large. I think I, like Terry, would decide on some sort of knapsack spraying-apparatus; and I am sure these German tubs, made of the proper size, will be the cheapest, nicest, and best thing we can get hold of. One of my German boys told me, some time ago, when I was applying liquid manure to my strawberries, that they used that kind of stuff on all their gardens in Germany. He says further, they make the *women* carry the liquid manure around in these tubs. It seems to me that is rather a joke on the German girls, especially if they have the kind of liquid manure we use. You see, I had a manure-cistern made, and I pumped the liquid on to a manure-heap, and let it run back again. It was excellent stuff for the plants, but it was not very pleasant when the rank-smelling liquid happened to slop and fly into your face, or run down the back of your neck. Now, if these German women have any such like experience, they certainly ought to be rewarded with magnificent crops; and I sincerely hope the German *boys* are able to appreciate them—I mean the girls, not the crops.

A HOME-MADE HARROW.

The Ohio State University describes as follows the harrow which they use in experiments in cultivating corn:

> It is made of light 2x4 in the shape of an A harrow, each side of which is 7 feet 4 inches long. Eighty 60-penny wire nails were driven in two rows around this frame, and the nails afterward bent slanting so that the harrow is drawn from one side instead of from one corner. One horse pulls this, and goes over two rows at once. This implement being light, and having long teeth, can be used with but little injury to the corn, after the ordinary could not be used. It is intended to prevent the weeds from starting, rather than to kill them after they have started.

My impression is, that the above harrow will do just as well as, or perhaps better than, many of the harrows in the market that cost a good deal more—that is, I think it will answer for mellowing the surface for shallow cultivation. They add as follows in regard to cultivating shallow:

> The experiment here given, and so many others which have been made, indicate that corn should be cultivated as often as it is necessary to kill the weeds, and need not be any oftener, and should not be any deeper than is necessary to kill weeds. The best depth will usually be from one to two inches.

I confess this last troubles me; but I am very well aware that, for a series of years, the experiment station has decided there is no advantage in cultivating as often as market-gardeners usually do. I must conclude that the very light soil in the vicinity of Columbus has something to do with it. I should be very glad indeed if the experiment station at *Wooster* would tell us if they arrived at the same results on their poor clay soil on top of those great hills. I would not go so far as to say that it pays to cultivate after every light shower, but I feel sure that it is a benefit to stir the ground enough to break the crust after any considerable rain; and where we have these tremendous soaking rains I believe it pays to cultivate down deep, providing the plants are small and we do not go too near them. Yes, I believe that, under such circumstances, a subsoil plow would help the plants to stand a drouth that might come during the latter part of the season.

A NEW FORAGE-PLANT.

Like many of the rest of you, I have, for a month or two back, been reading with great interest the seed-catalogs. Whatever may be said in the way of extravagance and misrepresentation in the way of bringing out new plants, there is no question but that the seed-catalogs of our land are a wonderful means of education, and a great help in the way of comparing notes and experiences. How pleasant it is to hear or to see, rather, how others have succeeded with the new things we have been watching anxiously! Now, I have alighted upon something that fills me with such enthusiasm that there is a strong tendency to fill a page or more in regard to it. I will try, however, to hold off a little. And, by the way, I have for years decided not to recommend any thing until I have first *tried* it. The Gault raspberry might be said to be an exception. It is true, I have never grown it yet myself; but I saw it growing and bearing fruit on such poor soil that it seemed almost as if there could be no mistake about it. I notice some of the papers are criticising the plant, and the editor of Gleanings likewise, for booming something out of his line. Very well. Suppose we let the matter drop then until I *have* myself grown it on my own grounds. If, however, some of you wish to try a plant or two, and test it for yourselves, there certainly can be no objection. Friend Gault is so near by, I propose to look over his plantation quite often during the coming season. But it is not the raspberry I wish to talk about now. Let me explain.

I told you some time ago about one of my visits through Northern Michigan. I told you of the miles of unoccupied sandy land because nothing could be made to grow on it profitably. I told you, too, that the Michigan Experiment Station at Lansing had been at work on the problem of finding some use for this vast unoccupied territory. Well, they are beginning to see daylight through the result of their researches—at least, *I* think they are. Let me diverge again a little.

While in Arizona two years ago this present winter I was full of enthusiasm over the alfalfa-fields that were spreading out into the sandy desert. Where people and animals would otherwise starve, these alfalfa-tracts with their beatiful luxuriant green were furnishing food and wealth for quite a population. I never saw any thing in my life in gardening or crops that pleased me as did the alfalfa-fields; and I have had a longing for something of the sort here at my own home. Friend Terry's clover-fields came pretty near it. But clover does not go down deep enough, and it is not permanent enough to suit me. I want something like alfalfa. Alfalfa has been tested too long and too faithfully to leave any hope that it may ever prove to be a success with us, such as it is on irrigated deserts. Now for the new find:

In Maule's last catalog we find the following:

THE SENSATIONAL NEW FORAGE-PLANT.

LATHYRUS SYLVESTRIS, OR FLAT PEA.

Sold last season in London at as high as $2.00 per ounce packet. As its nutritive value is nearly double clover and alfalfa, its value for permanent pasture can readily be estimated.

This new forage-plant has created quite a sensation at home and abroad for the last year or two, and has attracted the attention of distinguished agriculturists the world over. If the claims made for it are only half true, it is the most valuable acquisition to forage-plants ever discovered. Some of its points of excellence may be mentioned as follows: Its roots penetrate the soil 30 feet, which enables it to withstand great extremes of cold and drouth. It has double the feeding value of alfalfa, a crop richer than red clover. Its feeding ratio is 1 to 4.5, which is richer than oats, with a ratio of 1 to 6.5. It is richer than the balanced ratios for fattening cattle, and is rich enough for fattening either hogs or sheep without any grain. It will last 50 years without manure and without re-seeding. It will draw double the nitrogen from the air that alfalfa or clover does, hence it is the most valuable plant known for renovating worn-out soils. It will cut 8 tons of hay per acre in a season. When established, a field of it will fatten hogs, without any corn. Its growth is slow the first two years. The plants grow very little above the ground the first year, but the roots make rapid growth. The second year the top thickens up, and the third year the plant is matured. The seed requires several weeks to germinate.

Culture.—Prepare a piece of clean ground by deep plowing and thoroughly working. Plant the seed any time during the first summer months. Either drill or scatter by the hand in drills 12 to 15 inches apart. One plant to the square foot is sufficient when established, hence the seeding is light. Keep the weeds down the first year.

Well, what of it? Although Maule has given us many good things, and although he is a pretty straight man for a seedsman (I wonder if I ought not to beg pardon of the good friends who issue seed-catalogs, for that speech)—well, making due allowance for an enterprising seedsman who thinks he has got something that will do to boom, let us look at it a little. And, by the way, right after the above statement he published a letter from the Michigan Agricultural College. We all know these men have no interest in selling seeds. I hope there is not money enough in the United States to bribe any one of the professors of our agricultural colleges to help a seedsman or anybody else to boom a thing unless it deserves it. I read that letter from the Michigan station, and I could not help believing that Maule *had* got hold of something really valuable. Perhaps saying the roots go down 30 feet is a little strong. May be we had better knock off a half or a third. I should have lots of enthusiasm, even then. I at once wrote to the Agricultural College at Lansing, asking a lot of questions. Below is their reply:

In reply to your favor of Jan. 26, regarding *Lathyrus sylvestris*, I would say that I have no doubt that it will succeed in Ohio or almost anywhere, as it seems to endure cold and severe freezing, as also dry weather. It is quite slow to start, and makes very light growth the first year. Here on the college farm the seed was sown in drills 30 inches apart, and was cultivated, and even hand-hoed the first year; but the second year it grew enormously. It was not tested for forage except to try a few forkfuls in a green state, which cattle seemed to like—at least, they ate it readily. We saved all the crop for seed, but it got too dry, and it is very difficult to secure under any circumstances. We saved about 25 lbs. only, from the acre plat. This, of course, would be a very good crop at the rate per pound you quote. We have none to sell. Ours cost $5.00 per lb. when purchased. We sowed the seed in early spring; sowed some last fall to see how it would come.

I do not know of any other trials, although I think there have been a few on small plats. It will be tested for forage this season by feeding to stock. In Bulletin 101, which I send you, it will be seen that it shows high feeding quality by chemical analysis. It may not do as well when the cattle analyze it. It came from Germany or Austria, and is said to be a wild plant, improved by cultivation. Why it has not been "brought out" before, I do not know. It grows well enough outside after it gets started, and the transplanting is rather slow work. The seed comes up better if soaked in warm water several hours. I. H. Butterfield, Sec'y.

Agricultural College, Mich., Jan. 31.

The bulletins referred to in the above contain a large amount of valuable matter in regard to the plant. I read it very much as I first read the story of Robinson Crusoe—yes, just about as I read "Langstroth on the Hive and Honey-bee" 25 years ago. Oh how I do enjoy hunting up and finding out all about these wonderful new gifts—new to us at least—that God has in mercy, kindness, and love, provided for us! I presume you can get the above bulletin by sending to Lansing. Please put in some stamps, however, for I understand they are getting many questions in regard to the new plant. I confess I can hardly resist the temptation to use space for quotations from the bulletin. A kind letter from W. J. Green, of the Ohio Experiment Station, bids me hold on a little and wait until I am sure I am right; and I do not know of a wiser man to advise in such matters, in the whole wide world, than my good friend Green. Here is his letter:

Mr. Root:—We have had no experience with *Lathyrus sylvestris*. It has been tested to a limited extent by the Massachusetts, Colorado, Florida, and Michigan stations, but none of them have gone so far as to recommend it unqualifiedly in their reports. Analysis shows that it has a high feeding value, and after it gets once established it produces heavy crops; but it has the very serious drawback of being slow in starting, nor can it be harvested for hay with any machinery that we now have. I doubt very much whether it can find a place in our system of agriculture; but this is only an opinion. Farmers are averse to sowing beets, carrots, or any thing else, that requires much attention to get the young plants started, and I think that one trial of *Lathyrus* will be enough for most farmers. The first trial at Michigan was a failure because the weeds came up first and overran the young plants; but they obviated this difficulty the next season by sowing turnip seed in the rows. I think it ought to be recommended only in an experimental way. It will need several years of trial to determine its value. We shall probably give it a trial next season. W. J. Green.

Wooster, O., Jan. 30.

All who feel interested as I do can start some seeds right away—a five-cent package, if nothing more. Thorburn offers the seed at 30 cts. an ounce, or $3.00 per lb. If you want only a five-cent packet you had better order it of us, as no other seedsman puts up so small a quantity, that I know of. We can also furnish an ounce at 30 cts. if you wish, or 1 lb. for $3.00, postpaid.

He suggests that it takes a good while to get a good perfect stand. Never mind if it does, if it is true that it will stand 50 years, or even half that, after it is once started. I think I could afford to grow plants, exactly as we do cabbage-plants, enough to cover a good many acres, if I were sure it would stand so many years, and go down so deep that it would not require manure or cultivation or any thing else. He also suggests that there is at present no agricultural machinery known, capable of harvesting the crop, especially in the tangled-up way in which it grows. Well, even if this is true, will not the plant be of sufficient importance to warrant making machinery that will cut it? We do not know whether it yields honey or not; but if I am correct it furnishes a great amount of bloom and quite a quantity of seed.

MUSHROOMS—THE NEW KIND—AGARICUS SUBRUFESCENS.

So many complained that the mushroom spawn did not grow last year, I took it out of our catalog; but as orders kept coming, we have thought best to put it back again. Another reason why we decided to put it back is this: Mushrooms have been coming up all through our greenhouses, especially in ground that is heated by steam; and the perplexing thing is, it comes up in places where I did not know any earth had ever been taken to, from the mushroom-beds. As fast as they appear we have sold them readily at 40 cts. per lb.; and sometimes a very small patch of ground gives us quite a little money, most unexpectedly. Another thing, a beautiful white mushroom—white on top and white underneath—came up among the others. I should have called it a toadstool, but the stem was so thick and fleshy it made me think it must be good to eat. I directed Mrs. Root to cook a dish of them for me alone. Of course, there were loud remonstrances from all the family; but remembering some experiences given on previous pages I took just half a spoonful; at the next meal a whole spoonful; then three or four, and finally I ate the whole of them. And now you see I have got a new edible mushroom. I am inclined to think it comes up quicker than the mushroom of commerce; but unless cooked when very young I imagine they are a little tougher. But they are so clean and white they look almost like new-laid eggs.

Later.—Since the above was written I find, by an American *Florist* of recent date, that I have actually got the new mushroom that so much has been said about in the East—the (*Agaricus subrufescens*, Peck). In fact, the spawn has been sold, and is selling, for aught I know, at $5 00 per lb. I am not sufficiently well posted to undertake to sell spawn, even if I wanted to; but others may find this new mushroom in their beds. I believe it requires rather more heat than the old-fashioned kind, and they grow in clumps, three or more being attached together at the stems. They come up so quickly that you are surprised in seeing good-sized mushrooms where nothing was noticed just the day before.

How did I come to have this new mushroom, do you ask? Well, my opinion is that the new mushroom is probably scattered all over our land; and when the conditions are right, very rich soil and sufficient bottom heat, I think it will make its appearance. Very likely it has already made its appearance thousands of times, and been called toadstool. In fact, in trying to put it on the market everybody calls it a toadstool now. But you can, any of you, test it as I did; in fact, all the edible mushrooms throughout our land can be easily sorted out by using a little care in the way I have described. There is not a bit of need of anybody being poisoned if he eats very sparingly of any new variety that shows itself, until he has settled the fact that it is wholesome. My digestion is very easily disturbed; but mushrooms never give me the least bit of trouble—at least, none that I have tried so far. Perhaps I might explain that the botanical name of the old mushroom sold in the market is *Agaricus campestris*.

CHOICE 50c, TRIAL SETS.

Set B—16 pkts. Vegetable Seeds, - 50c
" **E**—20 pkts. Flower Seeds, - - 50c
" **F**—10 Lovely Carnation Pinks, 50c
" **G**—10 Prize Chrysanthemums, 50c
" **H**—4 Superb French Cannas, 50c
" **J**—10 Elegant Roses, - - - - 50c
" **M**—24 Fine Gladioli Bulbs, - - 50c
" **P**—6 Hardy Ornamental Shrubs, 50c
" **R**—6 Choice Grape Vines, - - 50c
½ each of any two sets, - - 50c

No two plants alike in these sets.

Any 3 Sets, $1,25; 5 for $2.

By mail, postpaid. Safe arrival and satisfaction guaranteed. Order by the letters from this advt. NOW as these are introductory sets not in catalogue, **an elegant annual** of 168 pages, free. **Everything** of the **best** for **Orchard, Vineyard, Lawn** and **Garden.** 40th year, 1,000 acres, 28 greenhouses.

STORRS & HARRISON CO.,
PAINESVILLE, OHIO, Box 74.

☞In responding to this advertisement mention GLEANINGS

500 Barrels Sweet-Potato Seed.

Yellow Jersey (best variety), extra select, bbl., $3.00.
" " " second size, " $2.50.
Extra Early Carolina, similar to above, " $3.00.
Southern Queen, Red Bermuda (Yam), early, good for heavy soils, $1.50 per bushel. Order now, and secure good seed at reasonable prices. Discount on 5 and 10 barrel lots. Address
L. H. Mahan, Box 143, Terre Haute, Ind.

☞In responding to this advertisement mention GLEANINGS.

Have You seen our Catalog
"Everything for Gardeners"?

It is unlike other Catalogs. Straightforward and truthful descriptions by a practical market-gardener, of the best in **SEEDS.** Tells about growing **$2000 worth of Prize-taker Onions** on an acre, and how to grow **$3000 worth of Celery** on an acre. We sell **Vegetable Plants, Timbrell** and other leading **Strawberries** and **Small Fruits. Trees** and **Supplies** for gardeners. **Danvers Yellow Globe Onion Seed at $1 per lb. True Prize-taker, $2.25.** We send a pkt. of this and of a **new Early Tomato,** smooth, good shape and size, and the earliest, also a pkt. of new **Sensation Lettuce,** with Catalog and several useful leaflets, for only 10c. Send now.
CHRISTIAN WECKESSER, Niagara Falls, N. Y.

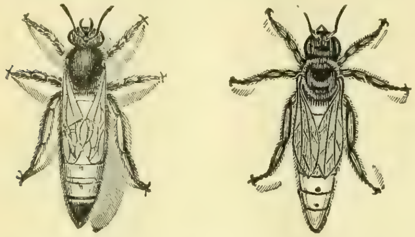
☞In responding to this advertisement mention GLEANINGS

Southern Bee-keepers,

Do you know that, freight considered, we can furnish you with supplies at a less cost than any house in this country? Freight rates from New York to Jacksonville, Fla., only 35 cts. per 100 lbs. Our circular free upon application.
I. J. STRINGHAM, 105 Park Place,
23 22 tfdb *New York City.*

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds.
W. Atlee Burpee & Co., Philadelphia, Pa.

IN THE FIELD. **GOLDEN QUEENS, NUCLEI.** *CIRCULAR FREE.* **J. F. Michael, German, Darke Co., Ohio.**

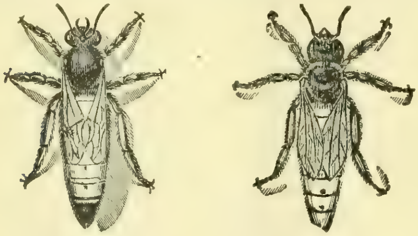


THREE BAND. FIVE BAND.

Five Band.—What is the matter, sister? Why don't you come out?

Three Band.—Oh! I see so much talk about you yellow beauties I am afraid I am going to be stamped out.

Five Band.—No, no! Jennie Atchley says we are sisters, and that she has tested us both for honey, and finds no difference; and she tells us to get down side by side, and let the people choose for themselves.



THREE BAND. FIVE BAND.

Three and five bands, raised in separate yards, untested, $1.00 each; $5.00 for 6, or $9.00 per dozen, March, April, and May; June and after, 75c each; $4.25 for 6, or $8.00 per dozen. Safe arrival and satisfaction guaranteed. Fine breeder, $5.00. Catalogue free. Let me book your orders.

Jennie Atchley, Beeville, Bee Co., Tex.

☞In responding to this advertisement mention GLEANINGS.

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

Seeds Free! ALSO Freeman Potatoes.

YOU CAN HAVE SUCCESS

in **Bee Culture** a Whole Year; 10 strong eyes of Freeman Potatoes (pure), and 10 packets of flower and vegetable seeds, for **40 CENTS,** silver. This offer is made to boom our circulation.

BURTON L. SAGE, Highwood, Conn.

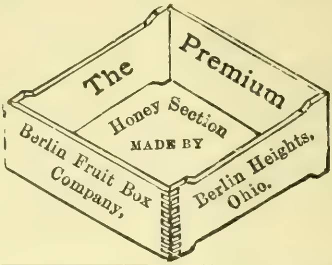
☞In responding to this advertisement mention GLEANINGS.

Apiary for Sale

In Hardin Co., Iowa. Plenty of basswood and white clover. Every thing needed in the business must be sold. If you want a bargain, write quick.

J. E. HAND, Selma, Cal,

EGGS FOR HATCHING Buff Leghorns, $1.50 for 15; Buff Wyandottes, $2.00 for 13; White Plymouth Rocks, $1.50 for 15; White Pekin Ducks, $1.00 for 9. All A No. 1 stock. **J. S. WARNER, Medina, O.**



Send for our new price list of Bee supplies and Fruit packages. A liberal discount allowed on winter orders. Address

BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.
1-10d

Automatic Comb Foundation Mills. **Made by W. C. Pelham, Maysville, = Ky.**

BBB'S!

If you keep ***BEES,*** subscribe for the **Progressive Bee-keeper**, a journal devoted to Bees, Honey, and kindred industries. ***50 cts. per year.*** Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address

LEAHY MFG. CO., HIGGINSVILLE, MO.

☞In responding to this advertisement mention GLEANINGS.

I will send post-paid for $1.00, **14 Beautiful Carnation Plants.**
For $2.00 I will send **15 Carnation and 15 Rose Plants,**
—30 in all—no two alike. ***S. LENTON,***
Piru City, Ventura Co., Cal.

APPLES, Ben Davis, Ark. Black, Mammoth Black Twigs, all varieties. Whole root only. Premium World's Fair. Trees, 10c each. On orders of 100 I pay the freight. W. H. LAWS, Lavaca, Ark.
Please mention this paper. 4 7b

GEO. W. HUFSTEDLER,

Breeder of 5-Banded Italian Bees and Queens.
Untested, 75 cts. Tested, $1.00 each.
CLARKSVILLE, RED RIVER CO., TEXAS.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb ***Sole Manufacturers,***
Sprout Brook, Montgomery Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

Queens? Yes, either 3 or 5 banded bees; Queens and supplies. Pure-bred Poultry cheap. Catalogue free. ***CHAS. H. THIES, Steeleville, Ill.***

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis.

$5.50 For 3, or $10.00 for 6, Finest Brown Leghorns, or Plymouth Rocks. Other varieties. Circular free. Address GEER BROS., St. Marys, Mo., or H. B. GEER, Nashville, Tenn. 5tfdb

SPECIAL NOTICES FROM BUSINESS MANAGER

STRAWBERRIES IN FEBRUARY.

We have had one ripe one, anyhow, and another is turning red, and there are quite a number of green ones. They are in the plant-beds over the exhaust-steam-pipe that runs from the factory to the house.

LATHYRIS SYLVESTRIS, OR FLAT PEA—PRICES ADVANCED.

Since what I wrote on page 204 in regard to this plant the price of the seed has advanced to $4.00 per lb., instead of $3.00. Ounce prices will remain 30 cts. until further notice.

LOW-PRICED ONION SEED.

That mentioned last month, on page 164, at $1.00 per lb., delivered at your postoffice, germinates beautifully. It is now up nice and green, with a good full stand. Prizetaker onion seed, until further orders, only $2.25 per lb., instead of $3.00, as in our price list.

MUSHROOM SPAWN, THE OLD KIND—AGARICUS CAMPESTRIS.

I have bought 100 lbs. of Peter Henderson. You remember our Experiment Station said his gave the best results, under the same treatment. We can furnish it, single pound, 15 cts.; 5 or more lbs., 12 cts.; 10 lbs. or more, 10 cts. per lb. If wanted by mail, add 10 cts. per lb. for postage and packing.

OUR NEW HOT-BED SASH.

We are having a tremendous trade on hot-bed sash. And, by the way, we are now prepared to furnish glass to match 8x10, for only $2.00 per box. Somebody asks if 8x16 will answer just as well. Yes, even better, because there are fewer joints. The glass we offer is single strength, and we think this heavy enough for small-sized lights. Large-sized lights would be preferable but both sash and glass are in more danger of breakage. We are using both kinds.

POTATOES FOR SEED THAT ARE NOT QUITE RIPE.

Doubtless some of our readers have seen the articles going the rounds in regard to saving potatoes for seed from a second crop that ripens just before frost, or, better still, that does not quite ripen. Please notice that our friend Wilbur Fenn, spoken of in the potato-book, has already been working on this line; and the carload of Monroe Seedlings that we offer for sale at $3.00 per barrel are of this very "persuasion." In fact, some of the hills were killed by the frost before they were entirely ripe; and the whole carload was placed in the cellar, as you may remember, when the thermometer registered only 17° above zero. They are as sound and perfect this first day of March as they were the day they were dug; and the cellar has been kept shut up as tight and dark as an ink-bottle.

FREEMAN POTATOES.

While at friend Nicodemus' I happened to look out of the window and saw a nice shaped mound of earth out in the garden, covered with snow. "That mound," said he, "covers my Freeman potatoes." By the way, some of the agricultural papers are saying that the Freeman is not a good yielder. I wish those who grew them last year would tell me briefly what they think about it. One thing I know—everybody seems to be after them, and our stock is just now dwindling away rapidly. By the way, there is a mistake in our price list in the price of Freemans by the peck. It says, "Peck, $1.00; bush., $2.00." That was another of A. I. Root's blunders. It should be, one peck, first quality, 75 cts. The reason why we have to charge more in proportion for small quantities is, that some sort of box or package must be provided for every shipment of potatoes, and it costs almost as much to put up a peck to send off as it does a bushel.

WIRE NETTING AND FENCING.

We call the attention of our readers to our wire-netting announcement, inside of last cover; also of short rolls in another column. These goods have never been as cheap as they are this season, and you notice we allow the freight on 200-lb. shipments from Connecticut, to the amount of 40c per 100 lbs., if it comes to that or more. See conditions in the ad't elsewhere.

CLUBBING RATES WITH POULTRY-JOURNALS.

We have calls from many of our readers for clubbing rates with poultry-journals. We have only one in our regular clubbing list; but when that is made up again it will include others. Until then we offer GLEANINGS one year with

The Poultry World, monthly, reg. price $1.25, for $1.90
Amer. " Journal, " " 1.00, " 1.90

HONEY, COMB AND EXTRACTED.

We are prepared to furnish a very choice article of comb honey, lots of 100 lbs. or more, at 14 cts. per lb.; fair, at 12 cts. Choice extracted clover and basswood, in 200-lb. kegs, at 7½c; in 60-lb. cans, 2 in a case, at 8c. Choice white sage, in 60-lb. cans, 2 in a case, at 7½c. We can have the sage shipped from Chicago, when preferred, at same price, and we can ship other extracted honey from several points east or west when preferred, at same price. Unless otherwise ordered, shipments will be made from here.

STICKEMFAST MUCILAGE.

We have at last got a preparation that will stick labels to tin, and keep them stuck indefinitely. Most preparations heretofore would seem to stick them all right, but after a little they would pop off. There is one great drawback to this. It comes in dry or granular form, and must be prepared for every two or three days' use, as it will not keep longer than three or four days and do its work. If prepared and applied fresh, according to directions, it will stick labels securely to tin or wood, and hold them. When used to stick two papers together they do not become hard, and crack, as with other mucilage, but remain pliable.

An ounce of the dry powder makes a pint of mucilage, which will stick a good many labels. Price of Stickemfast, including full directions for preparation, 1 oz., 15 cts.; 2 oz., 25 cts.; 1 lb., $1.25. Sent postpaid at these prices.

SECOND-HAND MACHINERY.

We still have on hand quite a line of second-hand machinery. If any of our readers or their friends contemplate putting in machinery we are prepared to fit you out from cellar to garret with every thing you need in engines, boilers, machinery, shafting, pulleys, hangers, belting, saws, etc. The following is a partial list of the second-hand machinery we have to sell. If you desire further particulars we shall be pleased to hear from you.

One 20-H. P. Fishkill horizontal engine, rebuilt, and as good as new; would cost new $400; will sell for $175, or with new boiler for $375.

Two four-piece section-machines, as good as new; they cost new, $85 each; we will sell them for $25 each.

A lot of ripping-tables with heavy mandrel, and screw and chain attachment, such as we used for sawing sections in the old way; worth $25; will sell at $17.50 each, including 1 rip-saw.

SECOND-HAND FOUNDATION-MILLS.

We offer at special low prices the following list of second-hand foundation-mills which have accumulated on our hands during the past few months. If any desire a sample of foundation made on these mills before ordering, we shall be pleased to mail it on request stating the kind or number of mill that you want.

One 6-inch hex., No. R; price $10.00. This mill is in good condition, and just right for surplus foundation 9 to 10 feet to the pound.

One 6-inch hex., No. Y; price $10.00. This is a good mill, suitable for surplus foundation 10 feet to the pound.

One 6-inch hex., No. A A; price $10.00. This is in good condition, and suitable for surplus foundation 10 feet to the pound.

One 6 inch hex., No. 1161; price $9.00. This is in fair condition, and will make foundation 10 feet to the pound.

All the above have the latest style of frames; the following are old style:

One 10-inch round cell, heavy, No. W; price $10 00. This is suited for only heavy foundation, and will answer nicely for that purpose.

One 9-inch Dunham, round cell, heavy; price $8.00. This mill is in fair condition, and is suited for heavy foundation only.

One 10-inch Pelham, almost new, and of the latest pattern, for heavy brood foundation only. Will sell for $9.00.

EXTRA POLISHED SECTIONS.

These are admired on all sides, and we have received many kind expressions from those who have examined samples. Here are a few of them: Geo. E. Hilton, Fremont, Mich., writes, "Your sample of sections, and price, at hand, and I inclose an order for 50,000, and hope to duplicate later. The samples are *superb*."

Chas. L. Hill, of Dennison, O., writes: "Your samples of sections, and price lists, received. We are favorably impressed with the workmanship of those extra polished sections, and can say you will surely have an immense sale if all go out according to samples, in quality." An old customer in St. Louis, Mo., writes, "The sample inclosed is certainly a fine piece of work, and, should we need any in future, will bear that in mind."

We might multiply these kind words, but these samples will show the drift of opinion regarding these goods. We are now supplying a number of dealers who have heretofore handled other makes. Though the orders are taking our output nearly as fast as made, we are prepared to handle more. We have also insured against running short of lumber. We have gone to an expense of about $200 in remodeling our drying-apparatus. The weather being most favorable, we have laid in the largest stock of the choicest white basswood it has ever been our good fortune to have at one time. We are, therefore, prepared for all demands. We meet competition in price, and surpass it in quality; if in need, therefore, let us hear from you.

CIRCULARS RECEIVED.

We have recently received price lists from dealers in apiarian supplies, queens, etc., as follows:

J. J Bradner, Marion, Ind.
E T Abbott, St. Joseph, Mo
Whitford Bros., Arlington, Neb.
J. W. Bittenbender, Knoxville, Ia
J. D Goodrich, East Hardwick, Vt
L. L. Price, Odell, Mo. Ferguson hive.
J. B Case, Port Orange Fla. Queens only.
E T. Flanagan Belleville, St. Clair Co., Ill
W. T Falconer Manufacturing Co., Jamestown, N. Y.

The following were printed in our job rooms:

H. M. Orr, Selma Cal.
F. H. Dunn, Yorkville, Ill.
Cole & Lowers, Latona, Wash.
M. H Hunt, Bell Branch, Mich.
N. D. West Middleburgh, N. Y.
J B Mason, Mechanic Falls, Me.
John Nebel & Son, High Hill, Mo.
Walter Pouder, Indianapolis, Ind.
J. M. Jenkins Wetumpka, Ala. Second edition.

CONVENTION NOTICES.

The Southwestern Wisconsin Bee keepers' convention will be held at Boscobel Grant Co., Wis., at the City Hall, on Thursday and Friday, March 15 and 16, 1894 All topics relative to apiculture will be discussed, and papers are solicited. There will be a question box. A. A. ARMS, Sec., Hurlbut, Wis.

The Triumph Incubator,

Manufactured by Ed. W Cole, Kenton, O., is the cheapest and best. Eggs for hatching, from stock which won nearly 300 premiums the past year.
Send for Description and prices.

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my *Golden Italians*. They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. *Sections, $2. per M.* Dovetailed hives way down.
CHAS. D. DUVALL, Spencerville, Md.
Please mention this paper.

Queens, Nuclei, Colonies } Send for Price List. Address S. D. McLEAN, Columbia, Tenn. } 1894

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. GREGORY BROS. & SON, Ottumwa, Ia. South side.
1-23o

WIRE NETTING,

SHORT ODD-LENGTH ROLLS OF WIRE NETTING, AT FULL-ROLL PRICES OR LESS.

We have the following lot of wire netting of various sizes and widths in short or odd-length rolls. Very often a person wants a piece and can not buy it cut from a full roll without paying double price. You may be able to find in this list just what you need, or very near it. Even if you want more than a full roll you will find the prices at which we offer these pieces to be in most cases less than full-roll price.

If any can use light 3-inch-mesh netting, 5 and 6 feet wide, we have a few rolls that we will close out as follows:

8 rolls 3 in., No. 19, 72 in. wide, 150 ft. long, at $3 25

Of 2-inch mesh No. 19 wire, we have the following remnants and short rolls at ⅗ c per square foot. The figures at the left give the width in inches, and the other figures give the length of each piece in feet. Multiply this by the width in feet, then take three-fifths of the result to find the price of each piece.

30 | 45, 60, 64, 70, 91, 95, 107, 123, 140, 144, 146
36 | 9, 18, 19 26, 38, 40 40, 40, 49, 50, 50, 50 53, 54, 55, 58, 60, 64, 73, 74, 82, 83, 84 87 90 90, 92, 94, 96, 96 96, 99, 115, 100 100, 100, 100, 100, 102, 102, 102, 105 105, 109, 110, 111, 114, 60, 116, 118, 120, 120, 122, 124, 124, 125, 125, 128, 129, 138, 141, 144, 147.
42 | 85, 131.
48 | 32 35, 38, 40, 55, 67 68 75, 75, 82 83 83, 84, 86 87, 90, 94, 96, 119, 122, 123, 123, 124, 138, 138, 140, 143, 144, 144, 144, 145, 145, 145, 146.
54 | 72, 88 88, 143
60 | 44, 101, 101 103, 105, 107, 110 120, 124, 144.
72 | 20, 42 47, 48, 73, 82, 85, 85, 88, 100, 100, 112, 119 120, 123, 124, 142, 148.

Of 2-inch No. 20 we have the following pieces at one half of a cent per square foot. Arrive at the price in precisely the same way as above, taking one-half of the number of feet instead of three-fifths, to get the price in cents.

30 | 140 140 140.
36 | 35, 36, 38, 39, 79, 81, 88, 100, 100, 119, 120, 122, 126, 128, 128, 134, 136, 138 140, 144, 145.
54 | 145.
60 | 20, 139.
72 | 38, 44, 45, 70, 75, 76, 79, 100, 100, 128, 137, 139.

In the following list we give first the size of mesh; next, the number of wire; next, the width in inches; then the length in feet, and, finally, the price of the whole piece, so you will have no figuring to do.

1¼ in., No. 19, 34 in x 126 ft, at $4.25.
1¼ in., No. 19 48 in. x 78 ft., at 3 50.
1¼ in., No. 18, 48 in. x 80 ft., at 4 20.
1½ in., No. 16 30 in x 70 ft., at 3 15.
1½ in., No. 16, 42 in. x 34 ft., at 2.10.
1½ in. No. 16, 48 in. x 92 ft., at 6 50.
2 in., No. 15, 18 in. x 73 ft., at 1 65; x 87 ft., at $2 00.
2 in., No. 15, 18 in. x 30 ft., at .70; x 55 ft., at $1.35.
2 in., No. 15, 12 in. x 100 ft., at 1.50.
2 in., No. 15, 48 in. x 8 ft., at .50.
2 in. No. 15, 54 in. x 122 ft., at 8.00.
2 in., No. 15, 60 in. x 20 ft., at 7.50.
2 in., No. 15, 60 in. x 21 ft., at 1 60.
2 in., No. 15 72 in. x 33 ft., at 3.00.
2 in., No. 15, 72 in. x 36 ft., at 6 20.
2 in., No. 16 12 in. x 78 ft., at 85.
2 in., No. 16, 18 in. x 13 ft., at .20.
2 in., No. 16, 30 in. x 24 ft., at .65.
2 in., No. 16, 72 in. x 58 ft., at 3.80.
3 in., No. 16, 24 in. x 19 ft., at .35.
3 in., No. 15, 36 in. x 14 ft., at .45.
3 in., No. 14, 48 in. x 15 ft., at .90.
3 in., No. 14, 72 in. x 70 ft., at 6 20.
3 in., No. 14, 72 in. x 100 ft., at 8 80.

We have, besides, a lot of pieces of web fencing, 4 and 8 inch mesh, that we will close out below cost. Those interested please write for particulars.

In lots of 5 pieces, any one or assorted kinds, deduct 5%; 10 pieces, 10%; 25 pieces or more, 15%. On the 72 inch netting you may also deduct 10% on single-piece orders; or, in addition to above, on quantity orders. First come, first served. Generally these pieces go off very rapidly, and it may be well to name a second or third choice in case your first may be gone.

A. I. ROOT, Medina, Ohio.

COMB FOUNDATION.

Made by an

IMPROVED PROCESS ON NEW AND IMPROVED MACHINES

of my own invention, which enables me to produce the

BEST AND CHEAPEST.

Prices on 5 lbs. or more will range from 35 to 50c per lb. Get samples and you will order.

W. J. FINCH, JR.,
931 E. Monroe St., Springfield, Illinois.

☞In responding to this advertisement mention GLEANINGS

Control Your Swarms, Requeen, &c.

Send 25 cents for samples of West's Pat. Spiral wire Queen-Cell Protectors, and and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. 12 Cell-Protectors, 60 cts., or 100 for $3.; 12 Cages, 60 cts., or 100 for $5, by mail. Address

N. D. West, Middleburgh, Scho. Co., N.Y.

Sold also by all the leading supply dealers.

DID YOU KNOW

That I have the LARGEST STOCK of

BEE-KEEPERS' SUPPLIES

IN NEW ENGLAND?

Consisting of Dovetailed, Simplicity, and other styles of Hives. My brand of XX white thin Foundation, and Polished one-piece Sections, are the nicest on the market.

A full line of every thing needed in the apiary at prices to suit the times.

BEES, QUEENS, and NUCLEUS COLONIES of my old reliable strain, at prices way down.

Send for 34th Annual Catalogue before you buy your stock, remembering the best is always the cheapest.

Address **W. W. CARY,**
4tf **COLRAIN, FRANKLIN CO., MASS.**

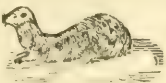
Cheap Sections.

All our apiarian supplies are down with hard times. Send for sample. *J. B. Murray, Ada, Ohio.*

NOW IS YOUR CHANCE.

To buy ***cheap.*** Bee-keepers' Supplies, hives, sections, fdn., etc. Write for price list. ROOT'S GOODS.
JOHN NEBEL & SON, High Hill, Mo.

For Sale. *56* acres (41 under cultivation); 185 colonies of bees; 2 acres of strawberries, 2 acres of blackberries, ½ acre of raspberries, 2 acres of orchard, with good buildings.
Box 419, Lima, Ohio.



FREE! My price list of pure Italian bees and queens, and white and brown ferrets. Address
N. A. KNAPP.
Rochester, Lorain Co., O.

Colorado Cactus, Known as "*Hen and Chickens;*" red, waxy blossoms. One by mail, postpaid, 25c, or a group of 5 to 7 for $1.00, by express. Grows in any climate. Beautiful ornament. Stamps taken. Address
R. K. & J. C. FRISBEE, 172 W. Maple St., Denver, Col.

A Big Bargain in S. C. B. Leghorn cockerels at $1 00 each, from high-scoring birds. Eggs for hatching, $1.00 per 13; also eggs for hatching from nine other varieties.
AUGUST GOETZE & SON, 3822 Wood St., Wheeling, W. Va.

Fay's Prolific Red Currants

Large Bushes for Sale Cheap.
FRED H. BURDETT, Clifton, N. Y.

Strawberry-Plants From beds that have never borne a crop, by mail prepaid, per doz., 20 cts.; per 100, Warfield and Beder Wood, 75 cts.; Bubach, Enhance, Gandy, and Saunders, $1.00; by express, per 100, not prepaid, Warfield and Beder Wood, $4 00; others, $5 00. Saunders and Gandy by dozen and hundred only.
F. S. McCLELLAND, NEW BRIGHTON, PA.

For Sale Cheap for Cash.

ASPINWALL PLANTER, COMPLETE.

Address GEO. A. HURD, S. Acton, Me.

Golden Wyandottes.

No better birds in America. Cockerel, $5 00. Trio, $7.00. Eggs, $2.00 per setting.
E. D. Keeney, Arcade, N. Y.

Texas Cactus. Small one by mail, postpaid, 25 cts. Large one by express, 25 cts. Grows in any climate. Fine ornament. Stamps taken.
Beeville, Bee Co., Tex. **Miss Leah Atchley.**

FOR SALE.—Elberta, Ellison, Wonderful, Stump the World, and all other leading varieties of **Peach-Trees,**

Guaranteed true to name, $4.00 per 100. Also, **Abundance Plums,** wonderful bearer, curculio-proof; fruit large, beautiful, and delicious, $10.00 per 100. I have 15 Abundance plum-trees, planted in the spring of 1891, of which one sitting on horseback can't reach the top. If you have room for just one tree, plant an Abundance plum. I will send one Abundance tree by mail for 15 cts. If you have room for three trees, plant an Abundance plum and an Elberta and Stump the World peach-tree. I will send the 3 for 35 cts.

5 Abundance plum-trees, by mail............	60
100 " " " " "	$11 00
10 peach, one or several varieties, by mail.....	60
100 " " " " ...	5 00

These trees are June-budded, and are 15 in. and upward. They will come into bearing in the same time that larger trees do. They have very large roots, and are surer to grow. The second year their growth exceeds that of the larger trees. The cost of transportation on June buds is very small. Aside from this fact, if you plant June buds once you will never plant larger trees.

Send stamps or coin for small orders. By permission I refer to the First National Bank, Madison, Indiana, and to A. I. Root, Medina, Ohio.

CEDAR GROVE FARM,
NORTH MADISON, INDIANA.
JOHN CADWALLADER,
PROPRIETOR.

☞In responding to this advertisement mention GLEANINGS.

EGGS FOR HATCHING.

B. MINORCAS P. ROCKS, W. WYANDOTTES, LANGSHANS W. LEGHORNS, B. COCHINS, $1 per 13; Buff Leghorns, $1.50.

Practical *Farm Poultry* says: Get the B. Minorcas for layers: they will lay you 200 large white eggs in a year. Fowls have good range and are guaranteed pure. Send for illus. catalog.
W. W. SHAMPANORE, LITTLE SILVER, N. J.

FOOT-POWER MACHINERY.

COMPLETE OUTFITS.

Wood or metal workers without steam power can successfully compete with the large shops by using our NEW LABOR SAVING MACHINERY, latest and most approved for practical shop use, also for Industrial Schools, Home Training, etc. CATALOG FREE.

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N. Y.

☞In responding to this advertisement mention GLEANINGS.

GOLDEN QUEENS From Texas.

My bees can not be surpassed for business, beauty, and gentleness. Safe arrival and satisfaction guaranteed. Untested queens March, April, and May—$1 each. *150* fine Tested Queens for early orders, $1.50 each. Order early. Send for price list.

J. D. GIVENS, Box 3, Lisbon, Tex.

☞In responding to this advertisement mention GLEANINGS.

Beautiful Queens.

The very best Five-banded Italians, tested and untested. Home-bred or imported mothers at exceedingly moderate prices, considering. Years' experience in queen-rearing. ***Nothing but the purest Italian stock in the apiary.*** Tested queens, $1.00 each. Untested, 75 cts.; $8.00 per doz.

J. W. K. Shaw & Co.,

Loreauville, = = Iberia Parish, = = La.

DR. J. W. CRENSHAW, VERSAILLES, KY.,

Offers for sale UNTESTED QUEENS at $1.00 each; after July 1st, 75c each.

All of yellow ("5-banded") variety, and as fine queens as anybody can rear. Bred from only the best mothers possible to obtain. Imported stock mated to yellow drones, same price. Any of Root's Goods at his prices. Send for circular and catalog. Book your orders now and get your Queens and Supplies when needed. Queens ready in May. Mention this paper.

Bee : : : : Supplies

On the Pacific Coast.

We are headquarters on the Pacific coast for A. I. ROOT'S SUPPLIES, and can furnish them at prices to suit you. Have secured special low freight to all points for this season. Write for catalogue and special prices, stating quantity wanted. = = = = = = = = =

Posson's Seed Store.

Address, Portland, Ore. 208=210 Second St.

TREES AND PLANTS.

UPON our 250 acres of nursery we have every class of hardy Trees and Plants; Fruit, Ornamental, Nut and Flowering. **Mary** and **Henry Ward Beecher** Strawberries and **Lovett's Best** Blackberry are among the most valuable novelties. In our catalogues named below (which are the most complete, comprehensive and elaborate published by any nursery establishment in the world) all are accurately described and **offered at one-half the price of tree agents.**

LOVETT'S GUIDE TO FRUIT CULTURE tells all about fruits, their merits and defects; how to plant, prune, cultivate, etc. Richly illustrated. Several colored plates. Price 10c.

LOVETT'S MANUAL OF ORNAMENTAL TREES AND PLANTS is authoritative as well as instructive; a model of excellence in printing and illustration. Gives points and plans for ornamental planting. Price, with colored plates, 15 cents.

Established 40 years. We successfully ship to all parts of the World.

All who order either of the above and name this paper will receive an ounce of Flower Seeds *free*.

J. T. LOVETT CO. LITTLE SILVER, N. J.

In writing advertisers please mention this paper. 3 6db

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

FULL LINE OF

BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

CROSSMAN IS READY

With those BEAUTIFUL GOLDEN QUEENS.

Reared from the best 5-banded stock, and guaranteed to give satisfaction. A nice lot of young tested queens for early orders, $1.50 each. Safe delivery insured. Send for price list.

W. P. Crossman, Box 141, Dallas, Tex.

WHY SEND WAY Down South For Queens? My bee-keeping friends, Northern Italian queens wintered outdoors are more hardy, energetic, and prolific in their season of bee-rearing. Read and think before ordering. Send for price list, and order early. Strawberry-plants of the latest variety cheap.

MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.
Chenango Valley Apiary. eitf

Root's Goods at Root's Prices.

We have the best shipping-facilities in the Northwest. We can save time and freight by shipping direct on some 40 or more railroads, without change of cars, which saves handling, and goods are much less liable to be broken or smashed.

Root's 1893 No. 1 white sections, 4¼x4¼x7 to foot, 1⅞, and $1\frac{15}{16}$, at $2.50 per 1000. No. 1 cream, 4¼x¼x1⅞ and $1\frac{15}{16}$, $2.00 per 1000.

Write for price list and what you want.

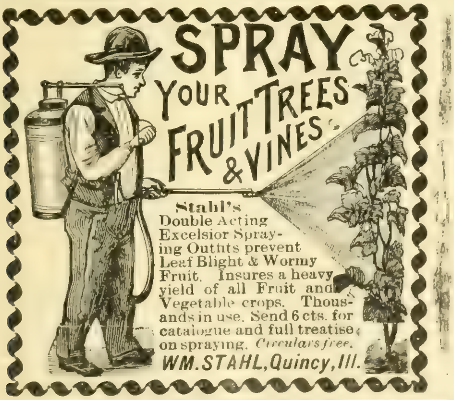
H. G. Acklin, 1024 Mississippi St.,
St. Paul, Minn.

Northwestern Agent for A. I. Root's Bee-keepers' Supplies.

For Cash.

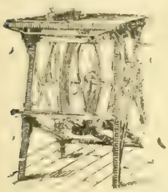
Pure light-colored Italian queens in April, May, and June. One untested, $1.00; ½ dozen, $5.00; per dozen, $9.00. Tested queens, $1.50 each. Select tested, $2.00. Guarantee safe arrival. Address

D. E. ALDERMAN, Clinton, Sampson Co., N. C.



Stahl's Double Acting Excelsior Spraying Outfits prevent Leaf Blight & Wormy Fruit. Insures a heavy yield of all Fruit and Vegetable crops. Thousands in use. Send 6 cts. for catalogue and full treatise on spraying. *Circulars free.*

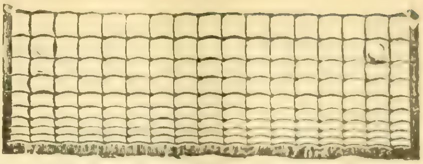
WM. STAHL, Quincy, Ill.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.

eoitf Please mention this paper



The Page Sits Up With Itself Nights.

No necessity for rushing out clad in scant attire to regulate the ratchets, on account of a sudden change in temperature. Every panel and every foot of the "**Page**" is "wound up" every hour and every minute ready for instant action, and "give and take" is its motto.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

SIX LEADING VARIETIES OF POULTRY. **EGGS FOR HATCHING.**

Orders booked now. Send for descriptive card.

J. S. Mason, Medina, Ohio.

BEES QUEENS
Smokers, Sections,
Comb Foundation,
And all Apiairan Supplies cheap. Send for FREE atalogue. E. T. FLANAGAN, Belleville, Ill.

BEE SUPPLIES RETAIL AND WHOLESALE

Every thing used in the *Apiary*. Greatest variety and *largest* stock in the West. New catalog, 70 illustrated pages, free.

Discounts to Dealers.

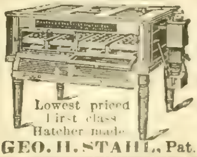
E. KRETCHMER, Red Oak, Ia.

☞In responding to this advertisement mention GLEANINGS.

World's Fair Medal

Awarded my *Foundation.* Send for *free samples.* Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free* Illustrated Price List of everything needed in the apiary. **M. H. Hunt.**
Bell Branch, Mich.

HATCH CHICKENS BY STEAM
WITH THE IMPROVED
EXCELSIOR INCUBATOR.



Thousands in Successful Operation. *SIMPLE, PERFECT, and SELF-REGULATING.* **Guaranteed to hatch a larger percentage of fertile eggs, at less cost,** than any other Incubator. Send 6c for Illus. Catalog. Circulars Free.

GEO. H. STAHL, Pat. & Sole Mfr., Quincy, Ill.

Please mention GLEANINGS. 21-8db

Cash for Beeswax!

Will pay 23c per lb. cash, or 26c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 28c per lb., or 30c for *best selected wax.*

Unless you put your name *on the box,* and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio.

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Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head For such our regular rates of 20 cts. a line will be charged and they will be put with the regular advertisements We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange a $30 gold watch for BEES, comb foundation, wax, white extracted honey, or section boxes. J. B. **MASON**, Mechanic Falls, Me.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. **GREEN**, Ottawa, Ill.

WANTED.—To exchange blackberry-sets, red and black raspberry-plants, $8 per 1000, for beeswax.
A. P. **LAWRENCE**, Hickory Corners, Barry Co., Mich.

WANTED.—To exchange Cuthbert raspberry-plants, at 75 cts. per 100, or $5 per 1000, for extracted honey, sections, 3-frame nuclei, or offers.
P. D. **MILLER**, Grapeville, Pa.

WANTED.—A brisk, temperate young man that would like to learn about bees and fruit. Bee-keeping and fruit-growing go well together.
S. I. **FREEBORN**, Richland Center, Wis.

WANTED.—Situation in apiary; 15 years' experience; capable of taking charge of apiary. Address R. T. **SMITH**, 4804 St. Lawrence Ave., Chicago.

WANTED.—Small second-hand planer, cheap for cash. D. G. **WEBSTER**, Blaine, Ill.

WANTED.—To exchange bees, queens, S. C. B. Leghorn and B. P. Rock eggs and poultry, for foundation, sections, or offers.
CHAS. H. THIES, Steeleville, Ill.

WANTED.—To buy bees; Texas or Colorado preferred. E. **SANDFORD**, Nokomis, Ill.

WANTED.—To exchange Cuthbert red-raspberry plants at 75 cts. per 100, or $4.75 per 1000, for foundation-mill or Italian queens.
A. L. **MARTIN**, Leonardsburg, Delaware Co., O.

WANTED.—To exchange nursery stock for thoroughbred poultry eggs; also bee-keepers' supplies. R. A. **LEWIS**, Cherokee, Ia.

WANTED.—By a bee-keeper of experience, employment in Texas or California. Handy at almost any thing. Best of references. Write at once to **FRED C. FULLER**,
Montague, Franklin Co., Mass.

WANTED.—To exchange 6-in. Root foundation-mill, for wax or honey. I. J. **STRINGHAM**,
105 Park Place, New York.

WANTED.—To exchange queens for Light Brahma eggs for setting. A. W. **TUFTS**, Musson, La

WANTED.—To exchange a foot-power buzz saw, for bees, honey, or offers.
H. L. **HUTCHINSON**, Mayville, Mich.

WANTED.—To exchange pure-blood poultry (Conger strain B. P. R.), or good dray wagon, made to run double or single, for a first-class orchestra violin outfit. H. F. **SWAN**, White Cloud, Mich.

WANTED.—To exchange 5 or 10 acre lot in Florida (Putnam Co.), for bees and supplies to be delivered at Keuka, Fla Exchange to be made in fall of 1894. Write to **DR. BALL**, 136 Main St., Norwich, Ct.

WANTED.—Position in apiary. Experience and reference given. Pleasant Home, O., Box 65.

WANTED.—To exchange incubators, brooders, and eggs for hatching, of 14 varieties thoroughbred fowls, for first-class thoroughbred poultry.
Address **ED. W. COLE**, Kenton, O.

WANTED.—150 colonies of bees (L. frame) in exchange for Eureka mowers, Spring-tooth harrows, Steel-lever harrows, Buckeye binders, etc. This machinery is all new and in good shape.
EZRA BAER, Dixon, Lee Co., Ill.

WANTED.—To exchange a No. 2 Noxal brooder for S. C. B. Leghorn eggs, Italian queens, or offers. E. M. **PINTO**, St. James, Mo.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have 20 or 25 black and hybrid queens; blacks, 25 cts.; hybrids, 30 cts. All young and prolific.
W. J. **FOREHAND**, Fort Deposit, Ala.

Five mismated queens, 50c each; 10 hybrids that I took in trade at 25 cts.; 10 hybrids, Cyprian Italians, at 60 cts. Ready March 15. J. C. **WALLENMEYER**,
606 Campbell St., Evansville, Ind.

I have purchased six colonies of black bees that have fine laying queens. These queens, if taken at once, may go for 35c each, or 3 for $1.00. Safe arrival guaranteed. Must go soon to make room for Italians. **ABBOTT L. SWINSON, GOLDSBORO, N. C.**

Three mismated and 3 hybrid queens reared in 1893, 50c each, or $2.50 for the 6. Must be sold by April 20. M. D. **ANDES**, Bristol, Tenn.

Fay's Prolific Red Currants
Large Bushes for Sale Cheap.
FRED H. BURDETT, Clifton, N. Y.

TEXAS CACTUS. 7 varieties, $1.00, by express. 1 for 20c, postpaid
YUCCAS. 5 varieties, $1.50, by express. One for 40 cents.
C. SCHUDDEMAGEN, SABINAL, TEXAS.

Eggs for Hatching, From choice stock, at hard times prices. S. C. Black Minorcas S. C. White Leghorns, and B P. Rocks.
EUGENE MANNING, Jacksonville, Tompkins Co , N. Y.

BEE-KEEPERS' Supplies of all kinds cheap for cash.
NOVELTY CO., ROCK FALLS, ILL.

Bees for Sale.
20 colonies in good condition; $5.00 per colony in Simplicity bodies, f. o. b. cars at Avilla, Noble Co., Ind. Address **A. E. SCHUTT**
870 Clinton St., Defiance, O.

☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

BOSTON.—*Honey.*—Demand for honey is good. Comb honey is in light supply, selling at 13@15 cts. Extracted is selling at 5@7 cts. No beeswax on hand.

March 8. BLAKE & RIPLEY,
Boston, Mass.

CLEVELAND.—*Honey.*—Prices on honey remain unchanged from last report, but the demand is not quite as firm as has been. Beeswax, No. 1, 22@23.

WILLIAMS BROS.,
March 7. 80 & 82 Broadway, Cleveland, O.

DETROIT.—*Honey.*—There will probably be no changes in price of honey until the new crop is offered. Best honey continues to sell at 13@15. Dark and inferior grades are very slow, and any reasonable offer is taken. Extracted, 7@8. Beeswax, 25@26.

M. H. HUNT.
March 8. Bell Branch, Mich.

KANSAS CITY.—*Honey.*—We quote: No 1 white 1-lb. comb, 14@15; No. 2, 13@14; No. 1 amber, 12@13; No. 2, 10@12; extracted, 5@7. Beeswax, 20@22.

CLEMONS, MASON & CO.,
March 8. Kansas City, Mo.

CINCINNATI.—*Honey.*—Demand for honey is slow, in sympathy with the general dull business all over the country. We quote extracted at 4@8c. Comb, 12@15 for best white. Demand is fair for beeswax at 22@25c for good to choice yellow.

CHAS. F. MUTH & SON.
March 7. Cincinnati, Ohio.

KANSAS CITY.—*Honey.*—We quote you No. 1 white 1 lb., 14; No. 2, 12; No. 1 amber, 13; No. 2 10 Extracted, white, 6½@7; dark, 5@6. Beeswax, 20@22. Demand for honey only fair; supply good.

HAMBLIN & BEARSS,
March 8. Kansas City, Mo.

ALBANY.—*Honey.*—Both comb and extracted are selling quite freely, and our stock is becoming quite reduced. Unfortunately we have on hand a number of large casks of extracted honey holding 600 lbs. each, and when honey is so plentiful not many customers are looking for such a large package, and it seems difficult to find customers for these. No change in prices.

CHAS. MCCULLOCH & CO.,
March 8. 393, 395, 397 Broadway, Albany, N. Y.

CHICAGO.—*Honey.*—Comb honey is selling in small lots, when choice, at 14@15; off grades are difficult to dispose of. Extracted is slow of sale at 5@6. Beeswax is in good demand at 25c for pure goods.

R. A. BURNETT & CO.,
March 7. 161 So. Water St., Chicago, Ill.

ST. LOUIS. *Honey.*—Market very quiet. Sales are being made as low as 3½ for extracted in barrels. Comb, 10@13. Beeswax, 24½@25.

D. G. TUTT GROCER CO.,
March 8. St. Louis, Mo.

BUFFALO.—*Honey.*—Liberal stock on hand. Beeswax, 25@30. The honey market remains unchanged. Moderate sales. Fancy, 12@13; choice, 10@11; buckwheat, 8@9.

BATTERSON & CO.,
March 7. Buffalo, N. Y.

NEW YORK.—*Honey.*—There is no improvement in our market. Demand is very light for both comb and extracted, with plenty of supply of all kinds. We quote fancy white 1-lb., 11@12; fair, 10; buckwheat, 9. Extracted, basswood and white clover, 5½@6; California, 5@5½; Southern, 55@60 per gallon. Beeswax firm at 28.

HILDRETH BROS. & SEGELKEN,
March 8. 28 & 30 West Broadway, New York.

MINNEAPOLIS.—*Honey.*—We herewith hand you our to-day's quotations on honey: Fancy white, 15; No. 1 white, 13½; fancy amber, 12; No. 1 amber, 11; fancy dark, 10. Extracted, white, 6½; amber, 5¼; dark, 5.

March 10. J. A. SHEA & CO.,
116 First Avenue North, Minneapolis, Minn.

DEAD-RIPE HONEY!—Ripened by the bees all fall. Mostly clover and linn. I will sell 2 cans, 120 lbs., for $8.00. **OLIVER FOSTER**, Mt. Vernon, Linn Co., Ia.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

Given Brood Foundation,
About five 16½x8½ sheets to the pound, in 10-lb. lots, at 40 cts. per pound.
H. W. FUNK, Normal, Ill.
☞In responding to this advertisement mention GLEANINGS.

Choice list of Barred Plymouth Rocks and eggs. Before buying, get circular and price
C. B. WAY, Shreve, Ohio.

I Will Exchange

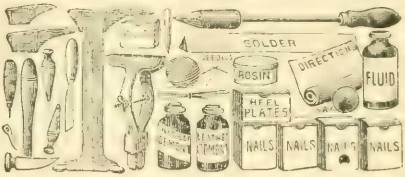
For your name and address, my Illustrated Catalog of Chaff Hives, Dovetailed hives, T Supers, Sections, Foundation, and every thing needed in the apiary. First-class goods, and prices reasonable.

Geo. E. Hilton,
Fremont, Mich.
☞In responding to this advertisement mention GLEANINGS.

4 ☞ **Ready April 1, 1894.**
Untested Italian queens, reared from the best stock for business, $1.00 each, or 6 for $5.00.
W. J. Forehand, Fort Deposit, Ala.

Root's Home Repairing Outfit.

ENLARGED, REMODELED, AND GREATLY IMPROVED.



Consisting of 28 First-class Tools and Materials shown in cut, viz.:

1 Iron Last, 10 inches	.45	1 Stabbing Awl, complete	.08
1 Iron Last, 8 inches	.40	1 Shoe-Knife	.10
1 Iron Last, 6 inches	35	1 Shoe-Hammer	15
1 Iron Standard with Base	.15	1 Bottle Rubber Cement	.12
1 Pkg. Assorted Nails	.05	1 Bottle Leather Cement	.12
1 Pkg. $\frac{4}{8}$ Wire Clinch Nails	05	1 Ball Wax	.02
1 Pkg. $\frac{5}{8}$ Wire Clinch Nails	05	1 Ball Shoe Thread	.10
1 Pkg. $\frac{6}{8}$ Wire Clinch Nails	.05	1 Bunch Bristles	05
½ Doz. pairs Star Heel Plates	.10	1 Harness and Saw Clamp	50
½ lb. Copper Rivets	.15	4 Harness Needles	.04
1 Steel Punch	.10	1 Soldering-Iron	35
1 Sewing Awl, Complete	08	1 Bottle Soldering Fluid	.10
1 Pegging Awl	.08	1 Box Rosin	10
1 Wrench for Above	.01	1 Bar Solder	.10
Directions for Using.		Total	$4.00

These tools when purchased separately at a hardware store would cost over $6.00. We furnish these Outfits in three numbers:—

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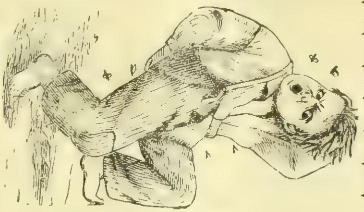

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A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by A. I. Root.
$1 00 per Year
Medina Ohio

Vol. XXII. MAR. 15, 1894. No. 6.

STRAY STRAWS
FROM DR. C. C. MILLER.

PLEASE RISE and tell what "an average crop" means.

DISHES PREPARED with honey at one of Nero's suppers are said to have cost $160,000.

BEE-KEEPING is to be taught at the University of California. Prof. Cook lives in California.

THE LANGDON NON-SWARMER is a great success in at least one direction—it keeps down drones.

THE HUSH-UP treatment for adulteration seems to be given up, and "fight" is the word all along the line.

MICHIGAN, Vermont, Rhode Island, California, Nebraska—not a bad list of States with experimental bee-stations.

FIVE CARLOADS of glucose were used by one firm in adulterating honey in California, according to Mr. Levering, in Cal. convention.

THE RIGHT SPACE between top-bars being asked for in *A. B. J.*, I was surprised to see that more of the repliers agreed upon ¼ inch than upon any other distance.

WASPS have the credit of making the break in fruit, which is followed up by the bees. With me it's birds and not wasps that make holes shaped like dumb-bells, in grapes.

THE KING-BIRD gets a good word in *A. B. J.* from Will A. Bryan, taxidermist in Iowa Agr. Coll. He thinks it eats enough noxious insects to pay for the few bees it gobbles, and eats bees only when other insects are scarce.

I THOUGHT I had seen sections as smooth as they could be made. But now come some from Medina with not a scratch of sandpaper or mark of plane to show they were made smooth. Just looks like they "growed" smooth. What a world of progress it is!

LESS BRAINS are said to be needed to raise extracted than comb honey. I'm getting to doubt that. A viler article of extracted can be thrown on the market by the novice than he can possibly get the bees to seal up in comb.

ROBBERS. Pres. McIntyre used a trap, removed the hive that was being robbed, put in its place the trap, and caught all the robbers. At night the robbers were released, and seldom commenced operations the next day.—*Cal. convention report in A. B. J.*

BRITISH BEE-KEEPERS are so stirred up as to the importation of foreign honey that the *B. B. J.* says, "If we devoted space to all the copy sent for publication, referring directly or indirectly on the foreign-honey question, ... there would be little room for aught else."

VANILLA seemed to be used in flavoring some honey I took this year, the finest I ever tasted, and I sampled some of the same that Editor York raised. A sample sent to Medina was pronounced extra clover, but I never tasted vanilla in clover before. Wish I knew what it was.

QUITE AN IMPROVEMENT in the pages of GLEANINGS to have the name of the author at the head of an article. The old way was much like introducing a speaker to an audience after he had finished his speech, or putting the name of an author at the end of his book.

SAY, RAMBLER, from the way Eugenia holds up her chin, she'll make you dance and skip to another tune when she settles down on you. You'll not be an "eversteamed friend," you'll be a "roasted" one. [How do you know, Doctor? Have you been there?—ED.]

ONE-SIXTH of an inch is *about* the right size for perforations in queen-excluders. That's $\frac{166}{1000}$, and 165 to 170 seems agreed on. One-sixth is easier said and remembered. [We have wished before that we might have an easier figure to remember, and here we have it. Just ⅛ of an inch.—ED.]

I DID SUPPOSE there was at least one place where I could have the last say; but the editor seems to be so overstocked with those "everlasting footnotes" that he has to pack some of them away in straw. I don't know what I can do unless I get a new editor with no footnotes attached.

FUN WAS POKED at me for talking about making foundation on a press without sheeting. On inquiry I find that a metal press, the Rietsche, has been in use for ten years, the wax poured in the press without sheeting, and that 6000 such presses are now in use. Will *Review* and *Progressive* please correct?

THE PLAN to estimate the comb-honey crop by the number of sections sold by manufacturers fell through because all would not tell, and I'm not at liberty to give any of the partial figures sent to me; but one thing I think I may tell; and that is, that I was astonished at the large amount manufactured by some of what I thought the little concerns.

FRIEND A. I., you say of that new forage-plant, the Wagner pea, that you are properly excited about, "We do not know whether it yields honey or not." If you will rake over the Straws in Jan. 15th GLEANINGS, you will find it is "a new honey-plant that's getting a boom across the water." According to accounts in German bee-journals, it's well worth a trial.

IT'S QUEER that in Germany all honor is given to Dzierzon and none to Langstroth, and in America the case is reversed. If I am not mistaken, the two great men worked independently, each knowing nothing of the work of the other, and both are entitled to the highest praise. I'm glad for the sake of the younger bee-keepers to see that sketch of Dzierzon by friend Mathey.

THANKS, Mr. Editor, for the item (p. 195), "Confusion in the use of terms." But in the 9th line, please say "a" instead of "the same." For the colony before swarming is not the "same collection of bees" as the swarm. Now let's stop saying "rabbet" when we mean "support, and "hatch" when we mean "emerge." After the hatching from the egg there's no other hatching. [We will agree to the correction on the word swarm, but we protest *hard* against trying to change the name of two well-known apicultural terms. They have been in use too long to change; in fact, it can't be done now. We say, the "sun rises," but the phrase is as inaccurate as rabbet for support. But why should we change? The use of "rabbet" and "hatch" causes no confusion. We would try to change a word only when, for example, like swarm, it makes confusion. Some of John Phin's definitions are more nice than practicable.—ED.]

GENERAL CORRESPONDENCE

EXTRACTED VERSUS COMB HONEY.

THE SHALLOW EXTRACTING SUPERS; MORE THAN TWICE AS MUCH EXTRACTED AS COMB.

By J. A. Nash.

My first extractor—the "Peabody"—looked like the family wash-boiler mounted on a pivot. A peg, semi-centrally located on top of the can, served as a handle, and a comb was hung in each end. As compared with modern extractors this was decidedly crude; but it was a great improvement on the first extractor.

This was before the days of sections, and our apiary was arranged to produce comb honey in small boxes with glass sides—six of these covering the top of a Langstroth hive. Here I got my first lessons in tiering up.

For many years I have produced comb and extracted honey in the same apiary, though the greater part of the time the comb honey has been a side issue. I have kept accurate accounts of profit and loss, and know that the production of extracted honey is more profitable with me than comb.

Now, while I have had a single colony store a greater amount, I have never been able to make a large number average more than 50 or 60 lbs. of section honey to the colony, while colonies in the same yard, run for extracted honey, have averaged from 125 to 160 lbs. I will say right here, that, when I make up my average of surplus, I deduct the honey in combs (sometimes a large amount) kept for feeding, and speak only of what *is* actually surplus and for sale. I seldom if ever molest the brood-chamber when extracting, but often put combs of sealed honey below, as bees are not apt to crowd the queen when plenty of room is given above, but the contrary is often the case.

In poor seasons the difference between comb and extracted is, with me, still more marked than in good ones, as I have several times obtained, by the use of shallow extracting-cases, 20 to 30 lbs. to the colony, when the foundation in sections in the same yard would be merely drawn a little, or perhaps a few sections partly filled, and therefore unsalable.

Of course, the bees run for extracted honey were provided with empty combs. Where a part of the apiary had to build combs above, they usually stored a little more than those working in small boxes or sections, an illustration of the fact that bees will build more in one large box than in several small ones.

I clip all my queens, and, with colonies run for extracted honey, I have little or no trouble with swarming. The hives are close to the ground, and a board leans against the alighting-board of each hive, permitting the return of the queen in case of swarming. Once in a while she enters another hive, but what is the odds? The bees are there to rear another instead of decamping to the woods, and the next season you clip in that hive a young and vigorous queen.

By clipping queens, using shallow cases filled with empty combs and self-spacing frames, I can care for 400 colonies, and do it easier than I could handle half that number storing in sections, as bees never swarm much if supplied at the proper time with empty combs.

The extracting is done at the close of the season, and there should be empty combs on hand to hold all the honey each colony can gather in a good season—see page 882, 1893. Another thing, in case of fall bloom, bees are often slow about building new comb in cool nights. Here the empty comb comes in play again. I have often had colonies take the "swarming fever," and swarm out from under the sections, when other colonies worked steadily on in the extracting-cases.

Perhaps some one will say, "Mr. N., you don't know how to manage a comb-honey apiary." I most candidly admit that this may be true; but I will also say that I should prefer to raise the comb honey exclusively if I could make it pay as well as extracted.

Monroe, Ia.

[Some later estimates seemed to show that only a little more extracted than comb could be produced, and some have gone so far as to say that *no* more can be produced. We suspect that the truth lies between friend Nash and those who take the other extreme. Under average conditions, from the very nature of things, more extracted than comb must necessarily be produced. For the latter, the bees must work in smaller compartments—a condition not exactly to their liking—and must also draw out the comb; i.e., make storage room as well as to store it. In the case of the former, combs are, or should alway be, in readiness, and all the bees have to do is to store it, and that, too, in roomy combs.

This is a practical question, and will bear further discussion.—Ed.]

ENTRANCES TO AN APIARY.

DIAGNOSING COLONIES FROM OUTSIDE INDICATIONS; SOME GOOD SUGGESTIONS.

By C. W. Dayton.

Placing hives near together saves travel, and land where space is limited; but when every thing is considered, it is advisable to space them about seven feet apart, and face the entrances in one direction, which is, toward the honey-house or work-shop, that all the entrances may be seen at the same time.

Thus arranged it forms what may be termed a face or countenance for the apiary, and is of equal importance to having the scholars in a schoolroom facing the master. If a queen is lost, the store of food is gone, or a colony is preparing to swarm, there is usually an indication of it in the maneuvers of the bees at the entrance. Much can be learned as to the state of the colonies by walking along and glancing at the rows of entrances in the evening. If some colonies roar louder than others it will be found that it is because they either are stronger in bees or are gathering more honey; and it is not always necessary to take the combs out of the hives, but, it may usually be determined by the dropping of loaded bees at the entrance, or the appearance of bits of new wax on the combs, on simply removing the covers.

When it is dark, and all the bees have retired within the hives, and a colony is heard to mutter in a restless fashion, it should be made a subject for examination the next day.

Again, in the early morning it may be noticed that some colonies are exceptionally lively at the entrances, and have brought out dirt, pieces of comb, and dead bees. This may indicate that the brood-space or space for new honey is being enlarged. Strength of colonies, or the evaporation of honey, is also denoted by the amount of moisture which condenses on the alighting-board—the breath of the colony, so to call it.

A few bees at the entrance, in a disturbed mood, when all the rest are still, may be caused by the loss of their queen, which may be carried out and dropped near by, and be easily discovered in the morning; and, later in the day, when the bees come to fly, a little bunch of "mourners" will collect around the dead queen, and more bees than usual stand idly about the front of the hive.

As the apiarist reviews the colonies some morning, he might be heard to remark in surprise, "Well, those bees in this hive are rustlers," noting an entrance where the bees are passing out and returning much more lively than at others. Examination of the combs shows that they are getting honey or pollen, continuing right on, even in the rain—utilizing every minute of sunshine, while many other colonies are doing nothing, and are slow to put on business airs when the sun shines and honey has become quite plentiful in the flowers.

In the season of 1891, while mowing before the hives early in the morning, one hive was noticed where the bees seemed to be *always* out. Continuing to rise earlier and earlier, these bees were found dropping down upon the alighting-board with heavy loads, while it was yet quite dark — so dark that the incoming workers could not be seen until they had alighted at the entrance. They held out thus industrious all through the fall; and where no other colony laid up above two or three pounds of fall honey, this colony stored between thirty and forty. When one-half or less of the entrances in the apiary are visible we do not record these exceptional colonies, because of the liability of the other half containing several even more industrious ones.

By observing the progress of the colonies all the time, from early spring up to the honey-harvest, the surplus-receptacles may be placed on the right colonies at the right time instead of watching the progress in the receptacles and making numerous changes and surprising mistakes after the harvest begins. The peculiar traits of the different colonies from which to rear queens will also be known.

[Mr. Dayton makes an excellent point here; viz., entrance diagnosis from day to day will determine better than any other means what colonies will be likely to require supers before others.—ED]

In no country is this study of the bees more neglected than in California. If the bees are not managed entirely by hired help, the owner seldom spends more than four or six weeks in the apiary, during the harvesting of the annual crop—a season of fatiguing labor, stings, and perspiration. The apiarists, or bee-owners, are mostly nurserymen, fruit-growers, shoe, harness, and dry-goods merchants, grocers, hotel-keepers, tradesmen, dairymen, stock - buyers, small capitalists, etc. The bees, fixtures, and land occupied is called a "bee-ranch." The prominent distinction between a ranch and a farm is, that a ranch is a place where laboring people and animals stay, while a farm includes a home. An apiary *may* be a place where bees are *kept* for love, study, and improvement. A ranch is a place where bees *stay* so long as they are a profitable speculation. If they are black bees it is all the same—stings belong to the hired help, and starving colonies to dry years, not always.

The bee-keeper who spends no more than six weeks in a year with the bees can not learn enough about them to create a desire for the improvement of stock or fixtures, any more than the boy can get an education by attending school but six weeks in the year.

In my last article I said considerable about chapparal, thinking chapparal and greasewood to be one and the same plant, as I had several times been told. I have since learned that they are somewhat different. Wherever I used chapparal it should be changed to greasewood. Chapparal grows there, but not so much as greasewood (or chemice).

Downey, Cal., Feb. 18.

[The main reason why we have the entrances face different directions at our apiary is, that the bees may be better able to mark their entrances. The similarity of the grapevines, the absence of other foliage or stumps, and other distinguishing objects, render this necessary; but in many localities a stump here, a shrub here, a mound there, trees of various sizes throughout the apiary. serve to mark each locality, and hence there would be a big advantage in having the entrances all one way. We have diagnosed colonies at the entrances in much the same way as Mr. Dayton speaks of; and was and is quite a hobby of ours.—ED.]

CALIFORNIA ECHOES.

By Rambler.

When that dairyman gets the honey-and-butter scheme to going, I wonder if he will also persist in mixing glucose with it. "No rose without its thorn."

Mr. Heddon thinks we ought to keep very quiet about this adulteration business. Mr. F. H. Hunt also thinks there is a great deal too much said about it.

If California has produced 5,000,000 lbs. of honey, it has been made into 10,000,000 by the addition of glucose, and the addition has been put on by the dealers.

The use of barrels or 60-lb. cans for marketing honey holds out an inducement for the mixing process. This inducement to manipulate would certainly be less if the honey were put in 5 and 10 lb. packages. Can we make a break, and put up our honey for the consumers instead of the dealer?

That is a practical question advanced by Mr. Heddon, wherein he writes of the maximum and minimum cost of production. Where does it cost the most, and where the least, to produce honey? From the number that are coming to California to produce honey, this must be the minimum country.

In your answer to F. L. S., of Minnesota, in relation to net profit per hive, is perhaps as good a guess as any one can give. One hundred pounds per colony of extracted honey is considered a light yield here; but taking it one year with another I think 150 lbs. would be the average yield, which would make the net profit a little more than you put it.

Cigar-stumps in a gill of boiling water will route like enchantment an army of robbers; so says a Straw. Robbers carried off for us 15 colonies of bees, 11 cans of honey, 20 lbs. of beeswax, and an old coat. Wish we had known about that cigar-stump plan. No use crying over it now, though; will know how to proceed next time. Many thanks, Dr. M.

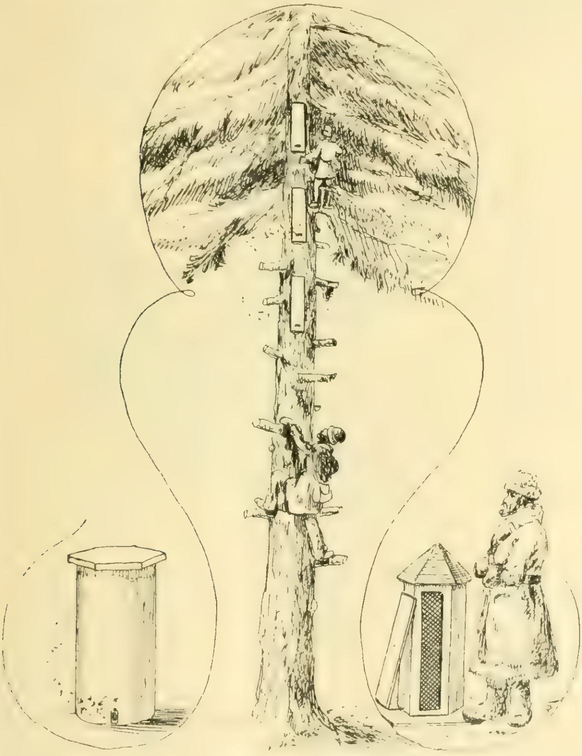
What a cold time that was over in Texas, as recorded in the *A. B. J.*, by Mrs. Atchley! Ice an inch thick! That's away ahead of semi-tropic California. We thought it very cold here, with ice half an inch thick. Some of our oranges were spoiled; but with an inch of ice, and a blizzard, we should have all perished. Come to California, Mrs. A., where we have a salubrious climate.

AN APICULTURAL RAMBLE IN RUSSIA.

By Karl Rudolph Mathey.

Like a bee that gathers honey diligently all day, and returns home at night wearied, laden with honey and pollen, so I came home each evening to my dwelling, richly laden with intellectual treasures which, throughout the day, I had gathered in cities, villages, woods, and fields, in churches, and during hours of meditation, in public places and in private houses. The evenings were spent in distilling the newly gathered material. The results attained were sketched down in a book and rewritten.

In Europe the largest state is Russia; and as I have already begun with the apiculture of that country, we will first, by word and picture, consider Russian forest apiculture.



RUSSIAN SCENE.

Here is to be seen, true to nature, a Bashkir bee-hive in the forest; and the reader who has been kind enough to follow me so far will here see the bee-keeper taking a look at his bees in winter, to see whether or not the provisions are lacking in either hive. Let us look at the tall tree a little more particularly—the one the bee-keeper has begun to climb in order to examine his bees, which are located in three dug-out cavities above; and woe to him if, on his way down, he slips from such a height. By means of a rope made fast to a wooden cask, the gathered honey is let down from above and taken to the house, where the clarifying process begins. The honey is first laid in a sieve, through which it trickles, and this is put on the market as "drop honey." That remaining in the combs is put into a kettle on the hearth, and cooked out and used in various ways for culinary purposes, but more particularly in the manufacture of "honey brandy" and "mead." At the left of the picture we see a colony rigged up for summer.

As the pasturage for the bees in the woods opens earlier and lasts later, it follows that this sylvan apiculture is much more profitable than that carried on in the open fields. In the forest there are many alder, hazel, and other trees, from which the bees, even as early as the middle of March, can gather pollen, while, on the contrary, in many places in the open country this early pasturage is entirely lacking, or, at best, hardly to be found earlier than April; hence earlier swarms in wooded localities may be expected. The yield from such hives is always large as compared with the regular culture of tame bees.

Now, as the owner of such forest-bees can not protect them from enemies and thieves, it has been found advantageous to locate them near by, and arrange them so that the bees may be sheltered, and the honey cut out conveniently.

Russia has also many great bee-keepers. Among the most prominent may be mentioned the Prussian nobleman Alexander Michailowitsch von Butlerow, Professor of Medicine and Chemistry in St. Petersburg, who died in 1887. Dr. M. was the founder of the movable system of frames in all Russia. Through the labors of Dr. M., his countrymen were enlightened as to bees, and their habits and anatomy.

In order to enlighten his fellow-countrymen as to the merits of rational bee culture and a movable frame, Dr. M. wrote a bee-book entitled "The Bee and its Life; the Chief Rules of Rational Apiculture Applied to Northern Climates." The book awakened great interest in Russia, and was crowned with the golden medal; and the Royal Economic Society of Russia scattered 20,000 copies. It has also been translated into Polish. Dr. Michailowitsch had, upon his old native place in Butlerow, an apiary with over 160 colonies, and carried on the raising of queens there extensively, and this apiary was managed by himself. He cultivated all known races, especially the Italian and Caucasian; and his hives were also samples from all parts of the world; but they were modified outwardly so as to correspond to their cold northern climate.

Medina, O., Feb. 5.

RAMBLE 104.

RIDES AND TALKS; THOSE BIG CALIFORNIA YIELDS OF HONEY.

"Hello, Mr. Rambler! There was a stout-looking fellow inquiring for you the other day. He had a double-barrel shot-gun and a whole row of loaded cartridges around his body; didn't seem to have blood in his eye, but still I thought he might be a dangerous fellow."

"Oh! no, neighbor; that fellow is not dangerous. That was a bee-keeping friend of mine who lives in East Riverside, and his name is Unterkircher."

"What! Unklekitcher?"

"No, no! Unter—kircher."

"Wall, I declare! wonder if that was the last name given to man."

"No, neighbor, there seemed to be several names sort o' tangled, and this is one of them. It is a German name. Unter means under in English, and kircher means kicker, I guess. We'll call it that, anyway—Underkicker."

"But, neighbor, what's in a name? According to Shakespeare, the rose would look just as pretty if called a burdock."

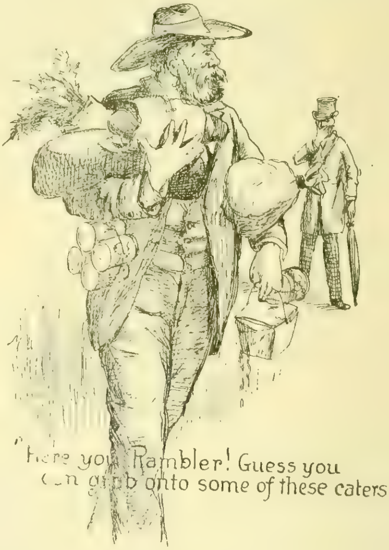
"That stout-looking fellow has done the under kicking on an apiary during the past season, and kicked out over 15 tons of honey."

"Je-whittiker! is that so? Well, now, he *is* some pumpkins;" and my neighbor went on his way, muttering "Underkicker—15 tons of honey—Jerusha!"

I was in hopes to have this 15-ton honey-man at the convention in Los Angeles; but la grippe laid him low about that time, and I had to make preparations to leave without him.

It was my intention to get off at an early hour the day previous to the convention. I had some fears of being intercepted by a constable. After going around with Mr. Moffat and the officer, as described in Ramble 102, they considered me a good witness; but matters and things seemed to go wrong that morning. When attached to the cart, Vixen, instead of starting off in a civilized way, sat down. After several other antics I raced her around the house and was just ready to start for the railroad when Mr. Hunt put in an appearance. Matters pertaining to beedom had to be considered, when, of course, the constable had to put in his appearance with his subpœna, and I missed the morning train. I hustled for the next one, however, and caught it, and about dark I was landed at the door of our treasurer, Mr. Woodbury, in Verdugo. I found Mr. W. had completed his tunnel for water that he was at work upon when Mr. Corey and I visited him. A windmill was merrily whirling, pumping water for various uses. No mishap had marred the comfort of that tunnel except the entrance of a skunk, which had odorized the water and surroundings to a considerable extent for several days.

After the buzzing of our convention was ended, and the bee-keepers had gone to their hives, as the dailies rendered it, I accepted the hospitality of Mr. Brodbeck, and prepared to accompany him to his residence in South Los Angeles. Mr. B. is not a very boastful man; but since he had partaken of my delicious flap-jacks he had thrown out various tantalizing hints about his superior cooking, even if he was a benedict, and he boldly challenged me to come and see. Before entering the electric car he led the way to a shop kept by an individual termed a caterer. I kept my eyes open to see what such a person was made for. The various mottoes on the walls all bore gastronomic sentiments—"Hot boiled tongue," "Quirks of sausage," "Corn pones," "Doughnuts, such as your grandma made." The more of them you read, the hungrier you get. I had just concluded to cater on some nice sliced ham when Mr. B. drew my attention to the fact that he had more cater bundles than he could manage, and I came to his rescue. A caterer's shop, as I understand it, is a place where they create an aching void in your stomach, and then sell you cooked food, sliced and mashed, ready to fill said void. When Los Angelans think of getting a regular meal they say, "Shall we cook or cater?" In this case, with my friend it was cater; and when we arrived at the Brodbeck mansion, and Mrs. B. had returned from the school near by, where she is a teacher, Mr. B. spread out his prepared food on the table, and exclaimed, "There, Mr. Rambler, see what a cook am I," just as though catering can compare with the



"Here you, Rambler! Guess you can grab onto some of these caters!"

self-sacrificing bachelor plan. There was no boasting at our breakfast, for Mrs. B. seemed to be in command, and the cookery was more domestic and anti-cater.

Catering is carried on extensively in Los Angeles; but in our rural towns catering is in its embryo condition. There's merely a plain sign, "groceries," over the door, and inside there are more babies and dirt than eatables, and you get a sudden desire to cater somewhere else.

Mr. B. still drives the horse that has done such good service in his Arrowhead apiary. His city life has not been very laborious, and his ribs were covered with several inches of adipose (the horse's ribs, not Mr. B.'s). While helping Bro. B. harness, my previous experience with mules had made me shy of heels. I avoided that portion of the horse; but Mr. B. quickly observed it and remarked, "Don't be alarmed. Prince never kicks. Why, a dozen dogs may bark all around him—he won't mind them."

We had a pleasant ride through some of the principal streets of the city; called upon Messrs. Bennett, who are dealing in supplies; also called upon G. G. Wickson & Co., who have a full line of supplies from the "Home of the Honey-bees." The Cowan extractor was examined and whirled, and we noted that the prospect for a large sale of them in California was good for the coming year. Messrs. Wickson's store, being at 221 South Broadway, near the business center of the city, is something of a rendezvous for bee-keepers when they come to town, and there's always something apicultural or agricultural to look at.

Our rides and our walks were well occupied in talks of bees, honey, and conventions, and the future prospects of our industry. It seemed that the honey business was getting on well in California, when our producers, like W. T. Richardson, could report 64 tons of honey, and a dozen more well toward it; and it was also quite marked that there was no secret about it.

The Rambler well remembers that, in his native State of New York, it was the practice and the teaching of a number of the large producers of honey to suppress and keep secret the amount of their honey-yields. The idea was, if you have a good thing, hold fast to it, and keep everybody else out. The plan works successfully to drive people out; but a poor plan by which to build up or settle a country. There has been a question recently raised as to the respective place California or New York should occupy in relation to honey production. If New York wishes to make good its claim to the greater amount, the honey-producers, notably of Mohawk, should come out of their shell and put their yields alongside ours; then there will be some chance to get at the real amount for the State.

It occurs to the Rambler that the question can be illustrated by the old-fashioned see-saw, where the *see* is on the part of New York, for they are elevated. Coggshall seems to be the next man to come over to us. The California end hides nothing under a secret. Come over, gents, and enjoy the open-handed liberality of our genial clime. There's room for 300,000 more.

After Mr. Brodbeck and I had enthused about bees all over town we returned to South Los Angeles; the big horse actually put on a 4.99 gait, and, when near home, joyfully kicked up his heels *a la* Vixen. No doubt there was an understanding between horse and owner on purpose to surprise the RAMBLER.

ALSIKE.

CROSS BEES; CORRECT SPACING OF FRAMES.

By M. W. Shepherd.

The article of M. M. Baldridge, "Does Alsike Clover Pay?" should be answered yes; it makes better hay and pasture than do the red clovers; it furnishes a large amount of honey for the bees to gather, and it does not winter-kill as the red clover does. Its long fibrous roots hold it in the ground when red clover will have no root-hold at all.

We should like to ask Dr. Miller if he ever killed a queen to get rid of cross bees, and found that the progeny of the new queen were crosser than ever the others were. Also, is it not generally the case that, if a queen does not get fertilized until she is ten or fifteen days old, her progeny are cross and disagreeable to handle?

On page 94 there is an article on "How to Advertise Honey." The very best advertisement is to sell nothing but what you can put your guarantee on first, last, and always. *Such* advertising always has a tendency to create a demand beyond the supply, while an advertisement covering a whole page would not hold a good market for a poor article for any length of time.

The correct spacing of frames is a subject of much interest to the bee-keeper, and also a subject on which there is a very wide latitude of opinion. "Major Shallard" tells us to space our frames 1⅛ inches from center to center, to prevent bridging and bracing. Several years ago J. E. Pond, in GLEANINGS (I think), told us to space frames 1¼ from center to center for the purpose of causing the bees to enter more readily the surplus-apartment. At that time but little attention was given to bridge and brace combs, but we soon found out that close spacing did cause the bees to enter more readily the boxes; and we found that we were not troubled with bridge or brace combs to any great extent. We also found that close spacing caused combs to be built clear down to the bottom-bar of the frame, and we are inclined to the opinion that close spacing has a tendency to restrict the raising of drones; yet as to this last we do not feel confident of the truth of the idea.

Don't drop those footnotes.

Rochester, Ohio, Feb. 10.

[This question is discussed further under Trade Notes.—ED.]

SYRUP FOR SPRING FEEDING.

FULL PARTICULARS ON HOW TO MAKE IT WITH A PERCOLATOR; HOW TO MAKE A PERCOLATOR.

By Dr. J. T. Beall.

How and when to feed are questions which I shall leave to those of larger and riper experience to answer, while I shall attempt to offer some suggestions upon that other but not less important phase of the question, *What* shall we feed?

Sugar syrup seems to be the most available material for the purpose; but there are various objections to its use as ordinarily prepared. I am satisfied that the mode of preparation which I shall now attempt to describe (but for which I do not claim originality) will overcome many if not all of these objections.

THE APPARATUS.

Procure a five-gallon tin can having a honey-gate at the bottom. Punch three or four very small holes, about equal distances apart, one and a half inches from the top of the can. For convenience we will call this can the receiver. Now have another five-gallon can made so that it will fit into the top of the receiver about one inch. The bottom of this can (which we will call the "percolator") should be made in the shape of a funnel, with a slightly tapering nozzle one inch long and ¾ inch in diameter at the outlet. Into the nozzle of the funnel fit a cork having several vertical grooves $\frac{1}{16}$ inch deep cut in its circumference. Now pack the funnel end of the percolator with a *good* quality of cotton previously saturated with water, and well squeezed out. A loose-fitting cover completes the percolator.

THE PROCESS.

Fill the percolator about two-thirds full of granulated sugar, and then pour in *cold* water until the can is about full. Soft water is preferable. The first half-gallon of syrup which passes into the receiver should be returned to the percolator, as it will be too light. All that is necessary now is to keep pouring in sugar and cold water occasionally, and to draw off the syrup as it accumulates in the receiver. Always keep enough sugar in the percolator to cover the cotton to a depth of about two inches. It is not necessary to weigh the sugar nor measure the water. Just keep up the supply of material; and the apparatus, like the Kodak, "does the rest."

THE PRODUCT.

Technically this is a saturated solution of pure sugar. It is a clear, clean, transparent liquid, having a specific gravity of 1.356. It is perfectly stable in any climate, will never sour nor granulate. It is heavier than any stable syrup that can be made by heat, and it is never overdone nor underdone. The heaviest syrup that can be made by heat (the officinal simple syrup of the U. S. Pharmacopœia) has a specific gravity of 1.317, and is liable to ferment as well as to deposit crystals.

The slight yellow tinge is due to the fact that, as the syrup passes through the percolator, the ultramarine (which is used by sugar-refiners for substantially the same reason that the laundress uses indigo) is left behind, and will be found in the cotton packing.

Just how inimical this substance is to the bee economy I am not prepared to say; but I feel safe in asserting that, as Jake Smith would say, "it doant do no pertickler good." I am convinced, however, that the most deleterious substances found in sugar syrup, as usually made, are the result of faulty methods of manufacture.

This apparatus can be placed in any out-of-the-way corner, and requires very little attention after once "getting the run of it." Unlike the old method of making syrup on the kitchen stove, there are no fires to keep up, no dauby, sticky utensils for the wife to clean, no burned fingers, and no "swear words."

The cotton, which should be of the best quality, must be renewed occasionally; but one packing will be sufficient for at least half a barrel of syrup. Although this syrup comes drop by drop, the process goes on, with unvarying regularity, 24 hours every day; and a few minutes' attention twice or three times a day is all that is required. By having the sugar-barrel and water-supply convenient, and arranging a barrel or other suitable receptacle under the honey-gate, the labor is minimized to the last degree.

To any one who may be inclined to think this process too slow I have only to say, try it and prepare for a pleasant surprise. Lastly, this syrup is of such a consistency that it is immediately available for use by the bees, requiring no evaporation after being placed in the cells.

Ontario, Ohio, Feb. 8.

[We have never made syrup with a percolator; but as the doctor seems to be perfectly familiar with the subject we have decided to give it a test. The trouble of using heat, boiling over, soiling stoves, etc., is enough to warrant every one giving the plan a trial.—Ed.]

MANUM IN THE APIARY.

THE LANGDON NON-SWARMER NOT A SUCCESS WITH HIM LAST SEASON, AND WHY.

By A. E. Manum.

"Now let me see, Scott. I believe you asked me before dinner how I liked this non-swarming plan, and if I could recommend it to others. My answer is, that one season's trial of a new method of management is hardly sufficient to test thoroughly its real worth, and determine upon its real practicability. As the seasons vary so much it is hardly safe for the apiarist to take a decided stand for or against any thing new that may come to light in apiculture. I have misjudged new ideas and theories so many times that I have learned to be very careful, and to weigh all things before adopting or laying them aside. But so far as I have tested this new plan I am not favorably impressed with it. I have, however, experimented more or less the past three years on a plan of my own, the principle of which is very similar to this, but without attaining perfect success, though I am hopeful that I may be more successful next season, as I aim to try it again, with some new additions to the plan I adopted last year."

"Did any of these 16 colonies swarm or offer to swarm?" asks Scott.

"Yes. Six of them built queen-cells, and two of the six swarmed. It happened in this way: On two of the stands—each occupying two colonies—the colonies, four of them, were of equal strength, all being strong, and all prepared to swarm, each one starting queen-cells while they had the bulk of the bees from their companion hive; and upon reversing the force of bees the reduced hive did not destroy their queen-cells soon enough to admit of giving them the working force before their companion colony cast a swarm. Hence, here lies the difficulty: When two colonies, of equal strength and advancement, are worked together while reducing one to prevent it from swarming, the other will swarm; but where one is strong, and the other only medium, or one is a week behind the other in the preparation of swarming, the plan will work completely to prevent swarming; but the apiarist must be on the alert, and attend to business; and, besides, he must know the exact condition of his bees at certain periods."

"How about the storing of surplus? It is claimed that, by this method, more honey will be stored."

"Yes, I know that is the claim set forth; but that has not been my experience, but, rather, the reverse. These 16 colonies have not given me any surplus, while my other bees in this yard have averaged 38 lbs. per colony. This fact has puzzled me more than any other one thing in connection with this plan. The shifting of the bees from one hive to the other every five or six days seemed to demoralize them to the extent that the storing of surplus honey was out of the question; and, moreover, you will observe that they are very short of stores, even in the brood-chamber—so much so that I must very soon feed them unless buckwheat favors us with a fair yield."

"I suppose that, since these colonies have retained their queens throughout the season, they have carried a large amount of brood, which doubtless accounts for their being short of honey, while your other colonies have been queenless a good part of the time during the honey-flow, and have, consequently, carried less brood, and have, therefore, saved the honey that the rearing of brood would have consumed," says Scott.

"Yes, that is correct in theory; but in this case it has not proved correct in practice, since the queens in these 16 colonies have not deposited eggs to the extent that would be expected. Why this is so I am not able to say, unless it be that the bees and queen in the reduced colony, finding themselves so weak in numbers, and unable to care for more brood, destroyed all eggs, thereby preventing all development of brood from that source; while the queen in the colony having all the bees, would be expected to fill at once the empty combs with eggs after receiving the full force of bees from the other hive; but this is not the case to the extent we should naturally expect, owing to the fact that this queen had so recently been deprived of the working force where her egg-producing organs have received a check so that she hardly gets in good condition for laying when receiving the full force of bees before they are again taken from her, and so on through the season. This, therefore, is my explanation of the cause of there not being more brood in these hives. As soon as I noticed the effect produced upon the functions of these queens by the shifting of the working force of bees from one hive to the other I commenced to experiment by reversing less often with some colonies and more often with others. I found that, to allow the force of bees to remain in one hive 12 days, it improved the condition of things in the sections, and the queen deposited eggs in the brood-combs at a satisfactory rate. But the colony that was shut off from the working force became so reduced in number of bees that their condition became alarming. They became so *much* reduced that nothing remained with the queen but a few very young bees—not nearly enough to care for the little brood they had. I found, by giving them the working force, there was no gain to the apiarist, as the storing of honey in the sections—which I had also changed—was stopped; and after three or four days I found that the eggs in the hive from which I had shut off the bees were all destroyed; hence by this transaction there was a loss in both honey and eggs. In the hives where I exchanged the working force every three days I found something of an improvement in the egg business, as the colony that was cut off from receiving any field-bees did not become so much reduced in numbers as to cause the wholesale destruction of eggs before the working force was again turned on to the relief of this colony. I am sorry now that I did not try one pair of hives by reversing the bees from one to the other every morning. I would now, but the season is so nearly over that I will defer the trial until another season."

"Manum, I am very much obliged to you for your explanation of these experiments, and hope that you will be more successful with your experiments another year. I had great hopes that Langdon's discovery would prove a success; and now as the hour has arrived when I must go to the train I will bid you and Mr. Daggett good-by."

[We like the tone of your first paragraph; that is, we like to see that caution or that conservatism, if you please, that is not inclined to jump at conclusions, and yet, on the other hand, is liberal enough to prove all things and choose that which is good. Mr. Langdon has made some improvements as well as discoveries that we hope will enable his device to do what was first expected of it.—Ed.]

HOW BEES USE OLD BROOD-CAPPINGS IN SEALING OVER HONEY.

"SANDWICHING" SECTIONS BETWEEN BROOD-NESTS, OR BETWEEN BROOD-COMBS NOT SATISFACTORY; A PRACTICAL POINT.

By Geo. F. Robbins.

When I read Mr. Manum's "sandwich plan" for prevention of swarming in connection with the production of comb honey, in the first column of page 137, Feb. 15, I shook my head with a motion that meant "I don't think that will do." When I read further on, that the bees were not sealing the honey as white as they should, I said, "Just as I thought." No, Mr. Manum, your "sandwich plan," as you followed it, won't work. I confess I am a little surprised that a man of your age, experience, and generally keen observation, should not have guessed that. It may prevent swarming all right. But when a case of sections is sandwiched in between two brood-cases the honey will never be sealed white, for the reason that the bees will work more or less of the brood-cappings, as they are gnawed and dropped from the combs above, into the honey-cappings.

Bees, you know, are pretty good housekeepers in their way. They are both neat and economical. Cappings or gnawings of any kind, as they fall on the floor, are dirt; and if the weather is suitable, and they are strong and healthy, they will allow none of it to lie there. But while cleaning it out, taking counsel of their economy, I suppose, they use a great deal of it over and over again as they find it convenient. If you have ever had occasion to insert an empty frame in the center of the brood-nest you must certainly have noticed that they will work some, at least, of those refuse gnawings all through the new comb. If honey is coming in pretty freely they will not use so much, for obvious reasons. They will use the same stuff more or less, especially in sealing the honey over, when a frame of sections is placed next to the brood.

Some years ago I tried inserting a wide frame of sections in the side of a ten-frame brood-nest, and the lower tier of sections would be capped almost a solid brown. I have also practiced raising a few frames of brood into the upper story, and putting a frame of sections on either side; but the bees would utilize so much of these old chewed-over cappings in sealing the honey over that I quit that. Without ever trying it, I am sure that, to put combs of brood over a case of sections, would be even worse, for the gnawings would, of course, fall through on to the sections, and, of course, the bees would work them into the comb very largely. Of course, the bees never contemplate storing honey for you or me, and they never eat the comb themselves. Hence, to weave the old rags or paper, so to speak, into their new fabric, is but natural; certainly no worse than to make the meat scraps left on the plates into hash, as some thrifty hotel-keepers do.

Dr. Tinker, to prevent after-swarming, set a storifying hive, from which a swarm has issued, above the super on the hive, into which he puts the swarm; but he uses what he calls a brood-board between the super and the upper story. It is, I believe, simply a solid board, bound, I suppose, with cleats, with a single slat entrance at one side, which would, I should think, pretty nearly prevent this misuse of old brood-cappings. If I should ever try this sandwiching scheme I should certainly consider such a device an essential part of the plan.

THE USE OF HONEY-BOARDS IN OBTAINING NICE COMB HONEY.

I might say, in this connection, that I learned another thing some few years ago. I used to be greatly annoyed by queens going into the supers and spoiling my nice honey. That was when I set my supers next to the brood-nest. To obviate this trouble procured a number of wood-zinc honey-boards and put them into use, as also a few sheets of perforated zinc, bound with cleats, and a few slatted honey-boards. I soon began to notice that the honey stored above these partitions averaged whiter than that built in supers that were set down next to the brood-frames. Repeated experiments at length convinced me that wood-zinc honey-boards were worth as much for that purpose, and to keep pollen out of surplus honey, as they were as mere queen-excluders.

Mechanicsburg, Ill., Mar. 4.

[Friend Robbins' points are well taken. From our own experience in putting sections between brood-chambers, or between brood-combs, we know that the capping of such sections when completed, take on largely, the color of the brood-combs next to them. This is one of the reasons why sections should be stored above the brood-nest, rather than under or between the two parts of the same, because the small bits of dark wax will drop away from the super. Apart from this, bees seem more inclined to store the surplus above. With respect to the honey boards there may be something in what friend R. speaks of. Who has observed the same regarding them, and does it appear that there is a difference in favor of the slatted wood zinc, over the sheet metal bound with a wooden frame.—Ed.]

JAKE SMITH'S LETTER.

THE SIZE OF HIVES DISCUSSED.

Mr. A. I. Gleenings—deer Sir:—You know I told you about Mr. Dinant, what a good bee-keeper he was. Well, he come to dinner one day, and we had a good time. After dinner who should come in but Jim Short? Jim he laffs at our makin so much fuss with bees, and says he gits all the honey he wants in the old-fashinned way, and with only half the trubble. Before he come we'd got to talkin about how big it was best to have a hive. Jim said he diddent go much on the size of a hive. Says he, "In the fall I heft the hives and take up the lightest and the heaviest."

"What do you take up the lightest for?" says Mr. Dinant.

"Well," says Jim, "if they're light they're not apt to winter over, so I may as well take em up. I don't git much honey, to be sure, but I git some, and I git some beeswax; and if I left em till spring the bees would be all dead and they wouldn't be neither bees nor honey."

"But why don't you keep the heaviest over winter?" says I.

"Because I've got a sure snap of a heavy hive, and I haint goin to take no resk. If I take it up in the fall I'll git a good haul, and what more do I want? I tried that thing a few times, and either they died in the winter, or if I waited a year later they wan't so heavy."

"I think Jim isn't so far out of the way," says Mr. Dinant. "A hive that's so very heavy in honey may not be very strong in bees, particklerly if they've crowded in so much honey the queen couldn't lay. And for some reason it seems to be understood that, when a hive is so strong in bees, it may not winter better than a middlin one. At any rate," says he, "it can't be disputed that Jim does better than the average with box hives. But that isn't what we were a talkin about. The size of hives is what we were at, and Jim has them pirty big. I spose that's all right for his mannidgment, but with modern improvements a smaller hive is best for comb honey. Nearly all agree on the 8-frame hive. But for extracted honey the 10-frame is best."

Zed spoke up, and, says he, "What's the reason it takes a bigger hive for extracted?"

"Because," says Mr. Dinant, "it's all the same to the bees upstairs and downstairs. But for comb honey it's different. The bees rather store in brood-combs; and if they have more than 8 frames then they begin to store in the 2 extra combs, and when they once git started there they don't like to go above."

"I was a readin what big hives the Dadants use," says Zed.

"Yes," says Mr. Dinant, "and they're good authority. But they work for extracted honey."

"Yes, I know," says Zed; "they put on a super of shallow frames, and sometimes the frames are filled with foundation. Now the bees fill up these frames with comb honey; and when the harvest is over they're extracted. The 10 big frames is best because it's to be extracted; but if it was to be took for comb honey then 8 frames would be best. Now, what I want to know is how the bees know beforehand that it's to be extracted."

"We had a real nice time"
"After dinner who should come in but Jim Short"

Mr. Dinant laffed, and, says he, "Why, Zed, you're quite a filosofer. It does look as if you've made a point there; but then the shallow frames are not just the same as sections, for they're not cut up into 4 inches square, and they have no separators. Perhaps, too, the frames of foundation are mixed with drawn-out combs. At any rate, nearly all agree that 8 frames is best. And nearly all the large honey-producers of comb honey use 8 frames—a thing they wouldent be likely to do if it diddent pay better than 10 frames."

Zed diddent say any more, but after they was gone he seemed to be a studyin over it. He seems to think the bees ought to work in sections about the same as in them shallow frames of foundation. JAKE SMITH.

ADULTERATION OF HONEY.

ITS OPEN AND UNDISGUISED PRACTICE IN CALIFORNIA.

By Prof. A. J. Cook.

This subject received much attention at the Los Angeles meeting of the California State Association. One of the members had just come from San Francisco, where he had been engaged in arranging the honey from Southern California for exhibition at the Mid-winter Fair. While at the California metropolis his attention was called to the matter of honey adulteration in the city. Upon investigation he found that the report was more than warranted. He had no trouble in discovering, not only the fact of adulteration, but those who were engaged in the business. Although the product was sold as honey—pure honey—yet these dealers in a palpable fraud did not hesitate to acknowledge their business, and told freely that they used glucose extensively in producing their "pure honey." They did not adulterate—at least, so they said—for the eastern markets, but only for this coast trade. It would not pay to bring glucose to California, to send back to the East, which seems a reasonable statement.

It will be remembered, that the samples analyzed by Prof. Wiley, and found adulterated with glucose, were labeled as produced in California. I remember one was labeled "Pure California Sweet-clover Honey." The eastern producer—or, better, mixer—was not informed, or he would have put white sage in place of white clover, as white clover is not a honey-plant of any importance west of the Rocky Mountains. This probably explains the "Muth samples." They were not only frauds, but the fraud went so far as to steal Mr. Muth's good name and reputation. Indeed, I think Mr. Muth says that some of the labels bearing his name were such as he had never used. We can readily believe that a man dishonest enough to sell a fraudulent article, would not hesitate to profit still further by affixing the name of some well-known and reliable dealer. This gentleman brought some samples of glucose from San Francisco, and, at my suggestion, our good friend Brodbeck took this home and carefully melted it and mixed it with honey, one-fourth, one-third, and one-half, if I remember correctly, just as I did one year ago with glucose procured from a wholesale confectioner of Lansing, Mich. Mr. B. brought these samples, together with the pure honey, to the convention the next day, as I did a year ago, and with a like result. I believe I was able to detect the samples in order of adulteration, although I tasted of one right after another, which, of course, is not a fair way, as, after one has sampled a mixture, the taste so remains in his mouth that he is less certain. It is not at all difficult, even then, to detect adulteration, as it is easy to separate the genuine honey from the mixture. Others, at both conventions, were no less able than myself to detect the spurious. This glucose mixture is not only easily detected, but, worse, it leaves a taste in the mouth which is far from pleasant. It reminds me of the unpleasant effect of taking brass into the mouth. I am sure that such an article would soon go begging on our table, even though we supposed that it was pure honey.

There are, then, two serious counts against this honey adulteration. First, it fills our markets with a cheap, fraudulent article, and so greatly injures the market for the genuine. Secondly, it is palpably inferior, and would soon make the consumption of honey, good or mixed, much less. I stated this at the convention, and all who tasted of the several mixtures were in agreement with me, so far as I heard expressions. Few will continue to buy honey if this fraud is imposed upon them.

The members of the California association, and I believe they are wise, differ entirely from Mr. Heddon. We believe it possible to stop this nefarious work. We believe it an injury, not only to bee-keepers, but to all who eat honey. We therefore believe it not only right and politic, but our duty, to agitate the matter till this arch-enemy of the bee-keeper is dead and buried beyond all hope of resurrection.

It was resolved to urge, with all the vehemence possible, that laws, both state and national, be enacted, making it a serious offense, punishable by both fine and imprisonment, to manufacture and sell adulterated honey, except under its own name. This means death to the business, as there would be no sale for the stuff under its rightful name. We shall secure these laws, and, thus armed, with the excellent Union to back—or, rather, to lead us—we shall be able to conquer this worst foe to American apiculture.

The California Association appointed a wide-awake committee on legislation, whose duty it shall be to urge upon Congress and upon our

State Legislature the importance of such enactments; and this duty will be performed, I can assure you. Already the committee are formulating a plan, and no time will be lost in preparing for a winning battle.

I would urge every State in the country, where the production of honey is at all important, to join us in this fight. Congress moves with great—often provokingly great—deliberation in such matters. The "Paddock Pure-food Bill" was an excellent one, and almost became a law. Let us all join hands in urging that it or another bill like it be speedily introduced into Congress, and pressed to passage. Each State should see that its Congressmen are flooded with petitions. Let us give them no peace till this action is secured.

Claremont, Cal.

THE GLUCOSE QUESTION AT THE ILLINOIS CONVENTION.

By Hon. J. M. Hambaugh.

Ed. Gleanings:—I think I can speak in behalf of the Illinois bee-keepers, as regards your stopping that "hue and cry" against adulteration spoken of on page 105. I consider Mr. Heddon an enemy to the cause by his course through this whole adulteration controversy, and we want to see that "hue and cry" hurled at him until he will be ashamed to acknowledge he is father to such outrageous wrongs against the pursuit. At our last meeting of the Illinois State Bee-keepers' Association, the following motion was adopted relative to the petition following it:

"That each member be requested to send a copy of the petition to their various representatives in Congress, with the solicitation of their assistance in having it enacted into law."

TO THE HONORABLE THE SENATE AND HOUSE OF REPRESENTATIVES OF THE UNITED STATES:

The Illinois State Bee-keepers' Association, in meeting assembled, by unanimous vote, petition your honorable bodies to make and enforce laws forbidding the sale of any article under the name of "honey" unless it be the natural product of flowers and plants, naturally gathered by the bees from the plants themselves, and marked with the name and address of the bee-keeper.

Your petitioners further beg leave to state, that the "Conger Pure-food Bill," as presented at the last session of Congress, is in accord with the wishes of the association.

Now, Bro. Root, we believe this will meet an approval with every bee-keeper in the land; and if so, why not urge each and every one to solicit personally, and by correspondence, their various representatives in the halls of Congress, to the end that something may be accomplished in that direction? If we are in earnest in our appeals against that *hydra-headed monster adulteration*, let us send up an appeal to the throne that will cause our law-makers to respect our interests, and do something to relieve us from the gross wrongs and impositions heaped upon us.

[See editorials.—Ed.]

SHADE FOR BEES.

THE EFFECT OF SHADE ON THE TEMPER OF BEES IN CALIFORNIA.

By Wm. Muth-Rasmussen.

Rambler has recently, on more than one occasion, spoken about the viciousness of California bees. I beg to differ with him. I have kept and handled bees in this State for 24 years, under varying circumstances, and I know that bees are vicious only as the owner makes them so. In Los Angeles Co. I kept my bees shaded with sycamore branches, laid on poles supported by posts set in the ground. The shed was high enough for a person to walk underneath. It not only gave shade, but free circulation of the air. When first put on, the shade was very dense; but in a few days the leaves wilted and admitted more daylight. Every fall the branches were taken down and burned up. At one of my apiaries, where Baldridge, Wilkin, Corey, and many others visited me, I had only one vicious colony out of 150, and I changed the disposition of that by changing the queen. Visitors often expressed their surprise at seeing me working with the bees without any protection over my head, and with my shirtsleeves rolled up to the elbows. I attributed the gentleness of my bees mainly to the good shade, which kept them comfortable, and partly to their proximity to the house, so that they became accustomed to seeing people and animals, without fear of being molested by them.

When I settled in my present location I planted 150 grape-cuttings, intending, in course of time, to have a hive standing at the north side of each vine. The first year I kept the ground nice and clean, and the hives were exposed to the hot sun all summer. This made the bees so ugly that I could not go outdoors, during the heat of the day, without having a number of bees trying to sting me. The next year I allowed the weeds to grow up all around the hives, trampling them down only at the back of each hive, where I had to stand when at work. The consequence was, that the bees at the entrances of the hives could not see what was going on outside, and I had comparative peace. I found, however, that the grapevines were not going to amount to any thing for shade (where the sun, as here, shines on all four sides of a house or hive during the day) unless trained overhead, and that would take too long a time, and be quite expensive. I then planted locust-trees in the apiary, and since these have grown up I have had no trouble with vicious bees. The ground under the trees is kept clean, as the hives are standing on low blocks, and I keep my queens clipped. But where the ground is covered with vegetation, and at the same time shaded, it tends to make the bees still more gentle, because no heat rises or is reflected from the ground. My neighbor, Mr. Baxter, has his bees in an apple and peach orchard, and the ground is covered with alfalfa, which at times grows very rank under the hives that are standing on benches 2 to 3 feet high. Time and again have I seen his horses standing in front of the hives, and eating the alfalfa underneath, without the bees appearing to notice them. I cautioned the owner about the danger to his horses, but he said there was no danger, and I never heard that any of them got stung.

Bee-keepers are often either too poor or too indolent to provide a proper shade for their bees. When Rambler gets through rambling, and settles down on a place of his own, where he can have his apiary in a nice grove of shade or fruit trees, he will change his views about the viciousness of California bees.

THE PORTER BEE-ESCAPES.

I wish to indorse all that has been said in favor of the Porter bee-escapes. I have used two dozens of them during the last two seasons. They are a wonderful help in saving time and labor, and in preventing robbing. I would not do without them, even if they cost five dollars apiece.

TO FASTEN FOUNDATION IN BROOD-FRAMES.

Let me say to Mr. Greiner, that I have for years used strips of soft pine, $\frac{1}{16}$x¼ in., and a little shorter than the inside length of the frame. I cut them out with my circular saw, and call them foundation splints. I always use full sheets, both in brood-frames and sections. The top-bar of my brood-frame is flat. I have a board on which is nailed another that will loosely fit the inside of the frame and support the foundation in the center of this. Having warmed the foundation so that the edge will bend without breaking, I place a frame upside down on the bottom-board; lay a sheet of foundation on the upper board. and slide it toward me, so that it will about cover the top-bar of the frame. Now place one of the foundation splints on the foundation, and about even with the edge; drive five ½-inch wire nails equidistant through the splint and foundation into the top-bar. Then turn the frame down, so that it lies on the bottom-board; press the bend of the foundation against the edge of the upper board (which should be moistened to prevent sticking), to make it square; raise the whole thing up perpendicularly, and lift off the frame with its sheet of foundation. It makes a sure job. Everybody for whom I make foundation wants a set of splints to fasten it with, and nails too, for that matter. To prevent splitting I dip a handful of splints, at the time, in a bucket of water, and shake the water well off.

I have tried the melted-wax method, but it was not always satisfactory. I have never used wiring, but am going to try it this year, to prevent the kinking of the lower corners of the foundation while the bees are working on it. If the wires could be pulled out when the comb is completed, and without injuring it, it would suit me all the better. I shall test this the coming summer. The wires will sometimes interfere with cutting out queen-cells, and as I do not move my bees around I have no need of wires to support the combs.

Independence, Cal., Feb. 14.

[We have sometimes thought that bees stung worse on hot days, but very possibly this might be due to a lack of sufficient shade on those days. But after all, it hardly seems to us that shade alone would make all the difference between cross and gentle bees. At the time of our bicycle tour through York State we were not very favorably impressed with the gentleness of some of the bees of the leading apiarists; and we remember that on some occasions we received some severe stings in apiaries that were in groves. Some buckwheat honey was coming in, so the bees ought not to have been cross because they had nothing to do but to sting and pry into other folks' affairs. At our home yard, a cut of which appears on p. 923, '91, a portion of the apiary is shaded with grapevines, and another portion stands in the corner of the evergreen yard, so that, during the forenoon and part of the afternoon, they have no shade whatever; and yet we do not discover that the bees are any crosses in one place than in another.

It seems to us that your plan of fastening foundation to top-bars is crude in comparison with that given on page 375 of "Langstroth on the Honey-bee," revised by Dadant. The Hanbaugh roller will stick foundation, full sheets, to the under side of top-bars that are perfectly flat, so securely that the foundation will tear before it will cleave from the wood. From the experience we have had, we believe it will do it in about half the time, and that without sticks or nails. In calling attention, however, to this method, we do not mean to say that your plan is not a good one.—Ed.]

NOTES FROM THE "VATERLAND."

BEES AS MESSENGERS.

By Karl R. Mathey.

A new use for bees has just come to the front; namely, as carriers of dispatches, especially in war. This use of bees has been previously confined mostly to sporting circles, but is now extended in its application through the efforts of a Frenchman, Mr. A. Teynac. He fastens to the back of the bee, by means of a little adhesive varnish, a minute piece of paper upon which is written the shortest and most condensed dispatch. This paper is fastened on in such a way as not to hinder the flight of the bee; and for additional safely a number of bees are sent out, similarly fitted up with the same dispatch. He now lets loose the bees, having removed, a few days previously, their hives to a distance of some 3 or 3½ miles, and in which they have been meanwhile confined. The bees then fly back if the region is well known to them, to their old home, where, in the mean time, a little framework of wire netting has been put up. Through this framework the unincumbered bees can easily pass. But those bearing a dispatch can not get through the interstices of the netting, as the paper adhering to their back is a little wider than the mesh of the wire. One can then look for the bees from time to time, and pick out the newly arrived dispatch-carriers. As a bee can not be so easily caught as, for example, a carrier-pigeon, and as they can be found in most localities, and require no special training, as do doves and falcons, for this work, and as it is of the utmost importance in war to convey secret messages with the greatest speed, it can not be doubted that this idea will receive serious attention if the bees do not prove to be too feeble for the work. KARL R. MATHEY.

Medina, O., Feb. 16.

FROM OLD ITALY.

By F. M. Malan.

Just as we Old-Continent bee-keepers feel much interested in reading apicultural matter from over the Atlantic, so, I am sure, do the readers of GLEANINGS when they get such news from the *queens'-land*—old, classical, and ever-splendid Italy. Well, I suppose some of my co-admirers of this very neat, well-informed, and trustworthy periodical have seen mentioned somewhere, during their apicultural career, a northwest corner of Northern Italy, an extensive and often narrow valley, adorned here and there with thick pine woods. A fine, wide Napoleonic road runs through its full length, so that we may say that Fénestrelles (celebrated for trees) and Briançon, on the French side of the Alps, form the two opposite poles of this famous valley, once altogether Protestant, but, at the close of the 17th century, violently Romanized by the missionaries of Louis XIV. But, of course, bees do not care for that.

Now, when a tourist wants to taste a first-rate honey, he asks at breakfast for *pragelato* honey (*frozen meadow*), nearly, I think, as if I asked for Narbonne or Gatinais honey in France. Its name is undoubtedly derived from the fact that the flat part of the valley consists mainly of fine meadows and rye-fields irrigated by a silvery Alpine torrent. I don't know what part of the United States would correspond to that celebrated and really excellent region. The altitude of this singular Italian valley, where people still speak good French, is rather considerable, being above the chestnut-tree region; and winter, consequently, is, as a rule, very sharp and long. It is nearly impossible to winter hives safely there. At some distance from the stern Fénestrelles, that fortress where Saintine has placed the hero of his romance, Picciola, we have an outpost apiary of about 50 hives, at 40 kilometers (25 miles) from home, so that it is no small job to get them so high, the fine road we spoke of being insensibly but unceasingly up-hill.

Luserna San Giovanni, Circondario-Pinerlo, Italy, Jan. 30.

[We owe our friend a vote of thanks for his interesting letter, and hope he will come again and stay longer. A letter from that land of music, painting, sculpture, and letters, can not fail to be read with interest.—ED.]

POLLENIZATION BY BEES.

By Prof. A. J. Cook.

Mr. Editor:—It is better to use the word "pollenization" or "fructification." The word fertile will apply to either sex, without regard to the other, and so the word has a certain ambiguity. I am glad of this discussion. It will make us repeat our experiments, use all possible caution, and so determine the real truth, if we do not know it now.

I wish to make a few statements, without extended comments, as I realize that you have been very generous of space in this matter already.

1. Many experiments have been made by such men as Darwin, Müller, Beal, etc.—men who have spent their lives in such work, and are very close observers, and all the results have looked in one direction; so if we find our experiments looking the other way, or our observations seeming to indicate the opposite conclusions, we should be slow to announce results till we have examined our methods and considered our observations most carefully, lest we have committed some error.

2. That the pollen from a bee is not potent seems impossible. If Mr. Fultz can establish that point, he will earn a place among the great discoverers. It would be almost revolutionary in our scientific theories regarding this whole question.

3. In many experiments tried at the Michigan Agricultural College, both plants were covered and bees introduced under the cover of one; and the results were many seeds where the bees were introduced, and almost none, or far less, in the other, or covered plants.

4. I do not wish to say that causes other than the absence of bees may not effect fruitage. I feel sure that bees are an important factor—so important that I mean to try experiments this season, that shall settle the question, if it is possible to do so.

5. That there was fruit before bees were imported into America is not satisfactory. There are wild bees; and before the forests were cleared, the climate was doubtless more mild,

so that the wild bees may have been more numerous in early spring. Again, the fruit-trees were as few as the bees—not gathered in great orchards. Thus there may have been pollenizers enough for the amount of fruit to be fructified. Again, who knows whether the amount of fruit was very great in this early time? In California, owing to the mild climate, there would be more—possibly enough—wild bees to pollenize the comparatively few fruit-blossoms on the wild plum, etc., which sweetened the spring air before the white man's advent. The case of the islands of Lake Erie seems conclusive; but is there not possibly some error of fact? Is it not possible that bees on other islands not far distant may have put in an appearance? Possibly the *Andrenœ* and other wild bees were in sufficient force to perform the labor. This would very likely be true in case the island was very small, and the trees limited in numbers.

Let us this season try to experiment so that the blossoms shall be under precisely the same conditions, except for the presence of the bees. Let us put aside all bias and preconceived opinions, and endeavor to settle the question. If it shall be shown, by a most cautious line of experiments, that bees are unnecessary to full fruitage, and of no importance in horticulture, it will not be the first time that theories in science have had to be recast. So we should all act in our experiments as if the question were unsolved.

In conclusion, let me say that geology shows that flowering plants and the bee orders came into existence at the same time, during the Cretaceous period, and not that the flowering plants were the earliest to arrive.

Claremont, Cal.

[We are glad to give Prof. Cook space for this reply, for, owing to the distance, he has not before had an opportunity to reply to the criticisms that were aimed at his article. We prefer to drop the discussion until fall, and complete experiments can be made again, taking into consideration the criticisms from the opposition. We feel confident of the result, and that that result will vindicate the claim of the bee more than ever.—ED.]

A LECTURE TO THE SISTERS AND—RAMBLER.

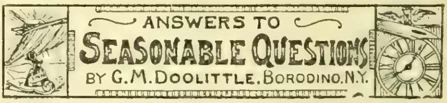
By Rob Roy.

I have been wondering for some time what keeps the sisters so mute. Do they ponder too much on "golden silence," or have they taken too seriously to heart Rambler's depreciation of the sex? Such fine specimens as he shows in Dec. 15th GLEANINGS might explain his attitude if they were a fair specimen of pacific womankind, which, of course, they are not. It would take a brave man to dare give his broom to such samples. But I do not imagine Rambler is altogether sincere in his attitude—it is only the bitterness of his loneliness which tinges his writings with blue, and casts shadows on womankind; but however this may be, the rest of us bee-keepers are not so one-sided; or if we are, it is the *other* sided with us. To be sure, the junior editor seems to hedge you in a little; but I am sure it is not that he begrudges you an open space in GLEANINGS proper. It is probably only that he knows how quiet ladies usually are, and fancies you will better enjoy a corner chat when you can talk wax flowers and dresses as well as aprons, without masculine interference.

For my part I should be sorry you should think we appreciated your help only when the bees hang out, and "somebody must watch," or, worse yet, when they have been too lavish with propolis and "somebody *must* scrape," or even when strawberries or peaches are ripe, and somebody must make the shortcake, or skillet pie, deep and rich. No, indeed; we are not altogether selfish, and we should like to have you show that you enjoy our success as well as to contribute to it.

I have used the plural *we*, as I do not fancy myself the only bee-keeper eager to lift my hat to the ladies; and now having expressed our sentiments I shall not feel it lost labor, even if Editor E. R. refuses me admittance into your Conversazione.

[Why, bless you, dear sister—or, or—brother—we did not mean to hedge in the sisters. We like modesty in the women-folks, but dislike that modesty that forbids "speaking out in meeting."—ED.]



ANSWERS TO SEASONABLE QUESTIONS
BY G. M. DOOLITTLE, BORODINO, N.Y.

PREVENTING SPRING DWINDLING.

Question.—Could not spring dwindling be prevented to quite an extent by placing wire cloth over the entrance to the hives to keep the bees from flying when the weather is not fit?

Answer.—So far as my experience goes, it is *never* best to confine the bees to the hive by placing wire cloth over the entrance, except when they are to be moved some distance or shipped when a sale is made; and in these cases wire cloth placed only at the entrance often ruins the colony if it is a strong one, where there is necessity for keeping it there more than half an hour or so. The matter seems to be like this: When the few bees that act as sentinels go to the entrance from any cause, and find that their exit is cut off, they at once communicate this fact to the rest of the colony, when more bees come to go out; and when they are not able to do so they begin to bite the wire cloth, and make a fuss generally, till the whole colony is aroused, and a commotion caused to such an extent that the meshes of the wire cloth are clogged up with bees so that no air can get through; and when this happens the bees become hot, or heated like fermenting vegetation; the honey in their honey-sacs is disgorged till the bees look like "drowned rats," and they perish with a heat sufficient often to melt the combs. If ever I have felt sorry for bees it is where they have perished in this way. There can be no assurance that this may not happen at any time, unless the weather is cold enough to cause the bees to cluster compactly; and were bees to be shut in hives when so clustered, the apiarist would need to be on hand, when the weather moderated, to take off the wire cloth, or a loss would occur. I doubt whether there can be any means used, in unpropitious weather in the spring, by which bees can be kept from flying out of the hive, that will not cost more than the benefit derived will amount to. Where bees are in chaff hives they are not so easily enticed out every sunshiny day, when the air is too cold for them to fly safely. If a wide board is placed sloping in front of the entrance, so as to exclude the rays of the sun from the entrance and lower part of the hive, bees will not venture out unless the air is warm enough for them to fly safely; but as these boards have to be removed every time the weather is suitable for the bees to go out, I doubt about enough bees being saved to pay for the trouble. I have practiced this to quite an extent in years which are past, but of late I do not, because I do not think it pays. Then, spring dwindling is not the result of the loss of the few bees that chance to go out for forage when the weather is unpropitious (although the numbers are quite materially reduced in this way when a cloud suddenly obscures the sun and a cold wind rises at the same time), but from the result of poor wintering, where the vitality of the old bees is worn out, so that they go out of the hive to die, and not for forage. A real case of spring dwindling can not be remedied by keeping the bees in the hive, for they would die in the hive just the same as though they were allowed their liberty. At least, this is the conclusion I have arrived at after a careful watch along these lines for nearly a score of years.

SEPARATE MAIL-SACKS FOR QUEENS TO AUSTRALIA.

Question.—Can we secure a proper condition, or surroundings, while queens are *en route* from America to Australia? i. e., can we know where the mail-bags containing queens are carried on the steamers? Are the bees boiled or frozen? We may have proper food in the cages, proper ventilation, the right number of bees with a queen, etc.; but if we can not control the mail-bag containing them, so but that they are left in the boiling rays of a tropical sun for days at a time, we can never arrive at perfect success in shipping queens to and from America.

Answer.—The above comes from no other than W. S. Pender, of New South Wales, Australia, the same man who was largely instrumental in securing the lawful mailing of queens to and from Australia, as samples of merchandise, and at a rate of postage cheaper on an average than that obtained for queens in our domestic mails. When I first read the above I thought that there could be no help in this matter; but the more I think of it, the brighter it looks. If the exporting of queens could become a business of sufficient value to warrant it, it seems to me there would be no trouble to arrange with the postal authorities at San Francisco, Cal., so that, upon the leaving of the mails for Australia, all cages containing queen-bees could be placed in a mail-sack made of porous cloth, and the mail clerk on the steamer see that this sack is kept in a cool airy place on the ship during warm weather, and, in cool weather, transferred to a place sufficiently warm for the comfort and welfare of its occupants. I do not know that this is just the place to discuss this matter; but as we are all beginners in this matter of shipping queens to foreign countries I thought it might not be inappropriate. Who will be the one to communicate with the proper postal authorities at San Francisco regarding these matters? Will you do it, friend Root? or can it best be done through the Bee-keepers' Union? It seems to me that, if we are ever to make a success of shipping queens in the mails to Australia, this part of the matter will have to be looked after; for, with every other condition the same, so far as I could see, some steamers have landed 75 per cent of my shipments alive in Sydney, New South Wales, while other steamers have landed 100 per cent there dead. These things can not be accounted for in any other way than that suggested by friend Pender. Would it not be well to agitate this matter, Bro. Root?

MOVING BEES SHORT DISTANCES.

Question.—I have 12 colonies of bees packed side by side. How can I move a part of them a short distance, leaving the remainder where they are? The bees have flown freely.

Answer.—Should there come a few days of stormy weather, so as to keep the bees in their hives, then is your time to move them, for at this season of the year bees mark their location anew after every week or so of confinement. Should no such time come, then I would move the strongest of the colonies and let the weak ones be strengthened by the returning bees from those moved. If this is not advisable, then move them in the evening or on some rainy day when all are in their hives, then stand a board up in front of the entrance. This board should be wide enough so as to darken the entrance to a considerable extent, and turn the bees to one side in going out. In this way the bees notice at once that something is wrong, and this causes them to mark their location anew; otherwise they would start off in a straight line as usual, and get lost. The old place should also be disguised in some way so it will not look as it did. Many bees will undoubtedly go back to the old place, but after careful watchings for many years I am satisfied that all these bees finally go back to the new stand.

TRADE NOTES
BY EARNEST R. ROOT.

MAJOR SHALLARD'S NARROW SPACING AND NARROW TOP-BARS INDORSED.

Mr. A. I. Root:—It has long been my desire to write a letter for publication in Gleanings; and Major Shallard's article on page 101 gives me an excuse for so doing. I have been experimenting with frames of different widths for the past seven years, and I have come to the conclusion that ¼ inch is a correct bee-space; and if the brood-frames are spaced a full ¼ inch between top-bars, and the top-bars are just ⅞ inch, the problem of burr and brace combs is practically solved. In the season of 1891 I transferred six colonies from old box hives, and the combs were very crooked, so I could not get the number of frames (8) in each hive. At different times in the season I placed frames containing sheets of foundation in each of the six colonies, and at the close of the season I had a nice lot of combs; that is, in those frames which contained foundation in them when placed in the hive. The frames which had foundation in them I placed at one side of the hive, and I had to space them closer than I wished, on account of the old crooked combs which I had transferred. I noticed, after I had placed 4 frames of foundation in one of the hives, that the top-bars seemed to be more clear of bits of comb than the others, so I left them spaced just as they were (a small fraction over ¼ inch), and at the close of the season this hive was almost entirely free from brace and burr combs.

The next season, 1892, I made a hive with top-bars 1⅛ wide, and hived the first swarm of bees in it, thinking that the frames spaced just ¼ inch at the top, and 1⅜ from center to center, would do away with burr and brace combs entirely; but after a time I noticed that the combs were not smooth and nice (and some burr-combs), like the frames which I had in general use, which were ⅞ of an inch wide, so I placed 10 frames in a hive (my hive is just 11¼ in. inside, by 13½ long) with sheets of foundation, and hived a late swarm on them, and I was very much elated to find that there wasn't a sign of a brace or burr comb either, and the combs were perfectly straight. There were a few cells along the bottom edge of the top-bar that were pushed out a very little. I tried four colonies this last season, with the same results. I am not, however, satisfied with the results as yet, on account of so little honey being stored in the brood-chamber. If my hive were larger it might give different results, and I am inclined to the belief that different localities will give different results. I shall make one hive this season the same style as the Dovetailed, and see what the difference will be. The above were all hanging frames. J. H. Goe.

Mossy Rock, Wash., Feb. 9.

[This is quite interesting; but, say! Doolittle and a host of others would "kick" hard against adopting 1⅛-inch spacing. Will Bro. D. please stand up and explain for himself.—Ed.]

¼-INCH SPACE BETWEEN BARS ⅞ INCH THICK, PREFERRED.

As to ¼-inch space between top-bars, I should agree with the article in Gleanings given by Major Shallard, having been in the bee business for 15 years, and having tried a good many kinds of frames, from a ⅞ to a $1\frac{1}{16}$ in. top-bar. That is the frame I am now using. I have at this date 94 colonies in winter quarters, all on their summer stands, and I find that I get the best results, without burr-combs, to have my top-bar $1\frac{1}{16}$ in. wide, ⅞ deep, and Hoffman self-spacing sides, using the same end-piece that you do, which leaves just ¼-inch space between frames. Since I commenced using them I have not been troubled with burr-combs. I would not use any other spacing than ¼ inch. It is enough for me. I have now 50 colonies on those frames. It is just fun to take off honey. I furnish all my hives now with those frames, and find all those using them say that they want no other than ¼ inch between frames. Mr. Nelson Morton, of Maples, is burning up all of his old frames, and is putting in all the $1\frac{1}{16}$-inch top-bar. He is an experienced bee-keeper, and has had bees for 25 or 30 years.

Eddyville, N. Y., Feb. 6. C. H. Avars.

[We believe our correspondent is about right. The larger part of the testimony seems to point this way. We have been making, for three years back, just such frames as friend A. speaks of; but 1⅜-inch spacing from center to center will give more than ¼ inch between top-bars $1\frac{1}{16}$ in. wide. For that reason we contemplate making them 1⅛ in., providing our readers do not think this too wide.—Ed.]

MAKING THE HOFFMAN FRAME DEEPER.

Friend Root:—Don't you think that, if the Hoffman frame were 10 inches deep, it would give better results? From my experience, the frame as made by you is so shallow that it breaks the queen's circle, or, at least, the brood extends some four or five inches along the top-bar, while with a frame 10 inches deep, the brood, as a general thing, comes just to the top-bar, or within one or two rows of cells of the top; and I find, after years of using such a frame, without any kind of queen-excluder, the queen has never, in a single instance, laid an egg in the super; and I can not see that the extra depth of the frame makes any difference in the time that bees will go to work in the sections.

I should like to know who that man is who writes for **Gleanings** and signs himself Jake Smith. I have an *idea* that his name would sound better written thus—C. P. Dadant. How is it? Jake is all right, any way; but we should like to know him better.

Mossy Rock, Wash., Feb. 9. **J. H. Goe.**

[Most of those who have advocated a change in depth have called for a shallower rather than a deeper frame. Regarding the identity of Jake Smith, you are wide of the mark.—Ed.]

HOFFMAN FRAMES INDORSED; 1⅛ IN. TOO CLOSE SPACING.

In the Feb. 1st number of **Gleanings** an article by Major Shallard, on correct spacing of brood-frames, appeared. I like his article very much except the 1⅛ inch spacing. I think it is a little too close. Such close spacing would be against bees clustering in a thick body, in wintering outside. I will give my experience of 14 years. When I began bee-keeping I used 1½ inches from center to center, with top-bar ⅞ inch wide and ⅞ inch deep, and a ⅜-inch space on top of the frames. Now, those frames would be stuck together with brace-combs, and the honey-board would be fastened down with burr-combs.

Six years ago I changed my top bars from ⅞ to 1⅛ inches wide, and ⅜ inch thick, using 8 frames in 11½ inches. That is the inside width of my hive. Ever since I made the change I am never troubled with brace or burr combs. Mr. Shallard thinks that, with wide spacing, the bees will not raise brood near the top of the frames; but I beg leave to differ with him. When I used the wide spacing, the bees used to raise brood close to the top of the frames. Now, between the two extremes, 1⅛ and 1½ inches, 1⅜ inches wide from center to center is just right. It is not the depth of the top-bars, but the distance between them, that prevents brace-combs. There should not be more than ¼ inch between the tops of the frames, and about ¼ or 5/16 inch between tops of frames and surplus-cases.

Next season, if I am spared, I am going to use 1⅜ inch spacing from center to center, which I think is just right. I also intend using the Hoffman frame next season, which I think will be a great improvement over the hanging frame. I made some Hoffman frames and placed them in a hive, wedging them up. I then raised the hive on end and looked at the bottom. One could not but exclaim, "Oh what beautiful spacing!" Then, taking out those frames, I replaced them with loose hanging frames. What irregular spacing! I think the Hoffman frame is going to be the sole frame of the future. **Wm. Coleman.**

Birr, Ont., Feb. 22.

[The spacing 1⅜ in. is close enough; as you say, it is a nice medium between the extremes. This spacing with top-bars 1⅛ in. wide will certainly secure all the advantages for the closer spacing and top-bars ⅞ in. wide.—Ed.]

Heads of Grain from Different Fields

ENCOURAGING FOR AUSTRALIA.

We are having a plentiful flow of honey here this year, though, owing to the few bee-keepers in this district underselling one another, the price of extracted honey is 6 cents per lb.

E. R. H. McCarthy.

Fernleigh, Australia, Dec. 16, 1893.

A CORRECTION.

In **Gleanings** for Feb. 15, page 133, 20th line from the top of first column, read "Chickasaw" for "Chicka;" and in 8th line read "cauliflower" seed for "California" seed. It will improve the sense wonderfully. **J. E. Crane.**

Middlebury, Vt., Feb. 21.

[Bro. Crane will have to shoulder the blame of the first error, while we take the second.—Ed.]

WATER INSTEAD OF SMOKE.

When one has any work to do in a hive, at a high temperature, the plan of using water instead of smoke is greatly to be commended. With this the bees are to be gently sprayed. Quietly as lambs they retreat, without making the least attempt to sting. I can recommend this simple method to all bee-keepers, whether they are "smokers" or "non-smokers."

Medina, O., Feb. 16. **Karl R. Mathey.**

[We have used water in place of smoke. While it is better than nothing, it is much inferior to smoke.—Ed.]

FAIR DEALING.

Friend Root: — We commission merchants have so many hard things said about us that it is very refreshing to receive occasionally a letter like the inclosed. Mr. Norton formerly lived at Lanesboro, Pa., but recently removed to Oakland, Cal. **Chas. McCulloch.**

Albany, N. Y.

Messrs. McCulloch & Co.: The draft on New York was received last night, and I must thank you for the promptness and fairness in your dealings with me. But, to be candid, it was no more than I expected after the recommendation of your firm I got from Bro. A. I. Root. I have learned to place implicit confidence in what he says. I do not understand how that can of dark honey came to be in the lot. **P. L. Norton.**

Oakland, Cal.

SOFTENING FOUNDATION.

On page 22 you say, "Soften old foundation by putting it in warm water." I soften mine by letting it lie in the sun a little while, but not long enough to melt.

I think Zed Smith struck it about right (page 19) in regard to ripening and keeping honey. I had some stored in a room over the kitchen, where there was a fire nearly every day the year through, and it was in good condition after being stored 2½ years. SUPER LIFTER.

Columbus, Wis., Feb. 10.

NARROW SECTIONS; WHY THEY ARE USED.

Some of my neighboring bee-keepers are using sections holding about ¾ lb., and their honey was the best I have ever seen, being much ahead of that on exhibition at the fair. Does size of section make any difference in looks?

Camillus, N. Y., Feb. 5. M. WHEATON.

[No; but they fill quicker, and, in a poor season, you can get full sections of the narrow sort where perhaps you could not with the standard widths. The former have the preference in Canada, and are gaining favor on this side.—ED.]

ARTIFICIAL HONEY FROM BEET SUGAR.

At a bee-keepers' convention held in Görlitz, Prussian Silesia, attention was called to a new use of sugar. In the sugar-refinery of Langelütje Bros., in Kulm, on the Elbe, real honey was so closely imitated that even a chemical analysis could scarcely show the difference. Even the same crystallization is noticed in the artificial product as in the best natural honey. This artificial stuff will sell at about 18 cts. per 2¼ lbs., and hence threatens to become a formidable competitor to genuine honey.

Medina, O., Feb. 16. KARL R. MATHEY.

[It seems that the same idea has broken loose in Germany that we have to contend with in this country. We sincerely hope and believe it will never "become a formidable rival" of real floral honey in either country. We have enough to fight against in glucose.—ED.]

SWARMING AND THE SUNDAY QUESTION.

On page 99 we see an article headed "Hiving Bees on Sunday." I will give my plan, but it may be different in other localities. I have never missed a service at church by watching for bees to swarm, and I do not think I have ever lost a swarm. The swarms that come out before time to go to church I hive, and leave the rest until I return. I have never known a swarm to come off without settling. As we are never absent more than three hours on Sunday, we are not likely to lose any thing. Sometimes two swarms go together, but nothing is lost by that. Brethren, by all means go to church.

Tipton Station, Tenn. A. C. SPENCE.

[Swarms will usually remain two or three hours before "lighting out," but not always. It is possible you lose a few swarms and do not know it. Again, in rare instances swarms will abscond without alighting beforehand on some tree or shrub.—ED.]

GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

His delight is in the law of the Lord; and in his law doth he meditate day and night.—PSALM 1: 2.

THE *Progressive Bee-keeper* is packed full of information useful to bee-keepers. Every issue shows a progressive spirit.

WE are obliged to leave out a good deal of matter from this issue, now standing in type. It will have to be held over till our next. By the way, Bro. Leahy, of the *Progressive Bee-keeper*, finds the same condition of things in his office. This must indicate prosperity.

WE call particular attention to the articles by Prof. Cook and Hon. J. M. Hambaugh, in another column. Let every bee-keeper who has an eye to bread and butter that he may get out of the production of honest honey, petition his senators and representatives at once.

WE are now working on the 62d thousand of our A B C of Bee Culture. We fear that the previous edition will be exhausted before we have the new one completed. The new edition, like every previous one, is receiving some large additions and revisions—so rapid, indeed, is the progress of our industry.

THE policy of the *American Bee Journal* and GLEANINGS, in strongly condemning Mr. Heddon's position on the question of glucose, is warmly indorsed by a number of writers in the first-mentioned journal. Our own collection, if we were to publish the whole list giving similar indorsements, would be a long one.

BRO. HUTCHINSON, editor of the *Bee-keepers' Review*, has written a very interesting article on "The Largest House-apiary in the World." It was written for the *American Agriculturist*, and is accompanied by half-tone engravings showing exterior and interior views. The building is owned by H. P. Langdon, of East Constable, N. Y., of non-swarming fame.

IN the *American Bee Journal* for March 1, under Queries and Replies the question is asked, of a score or more of bee-keepers who answer the questions in that department, what race of bees they prefer. Nineteen out of 26 vote for the Italians; 1, Italians crossed with German bees; 2, Italians crossed with Carniolans; 1, the Syrio-albino; and 2 the Carniolans. It is remarkable how the Italians seem to hold the preference among prominent bee-keepers. There was a time when the Holy-Lands, the Syrians, and Cyprians, were preferred by a large number of bee-keepers. These, with the exception of a cross of the Syrians, are utterly ignored; and the next in point of preference are the Carniolans.

THE *Canadian Bee Journal* is steadily improving. It has just put on a new and tasty cover. The paper and presswork are of the best, and the editorial management shows the handiwork of a practical bee-keeper. We gave this journal a good send-off in our previous issue, but it really seems to deserve another. The new series of the *C. B. J.* differs in one important respect from the old one. The former started on a high plane of journalism and gradually went *downward;* but the latter started on a high plane too, and so far has been gradually working *upward.*

OUR friend Mr. Mathey, our German correspondent, is not only a writer for the journals, but an artist—one who can reproduce the various scenes in his travels. An article in another column gives a very fair idea of Russian bee-keeping. By the way, it may be interesting to our readers to know that Mr. Mathey was for two years translator for the consular representative of Austria at Philadelphia. He was chosen to that position after having passed the highest marks out of some 50 different ones who applied for the coveted place. It was his work to translate the Polish, Russian, Slavic, and Hungarian into German.

So it appears from the railroad statistics that California produces over 5 million pounds of honey a year. In another column Rambler expresses an opinion that this amount is increased to 10 million by the addition of glucose. There was a time when it was policy to keep still, because there was so little glucose mixing done that it did more harm than good to mention it; but now the "hush-up policy" would be suicidal to our industry. It would let the glucose fiend ruin prices on honey, and finally disgust consumers with any thing bearing the name of honey, so that it would be impossible to dispose of even the pure unadulterated article at even half decent prices.

IN our wax-room we have observed that the alternate heating and cooling of yellow wax causes it to become slightly darkened. We have known this to be the case, but did not suppose that it had so much effect until very recently. Our attention being called to the matter, we asked the foreman of our foundation department to place a small quantity of extra select yellow wax, with a little water, in a large *wooden* pail. This he was to heat every day, and let cool, for a week. With a dipping-board he was to take a sheet of wax at the first heating, and another after the six days of successive heatings and coolings. We have before us the result. One is a beautiful sheet of yellow wax—as nice as any thing any one ever saw, and the other is darkened to a light pea green. It looks decidedly muddy.

THAT ADULTERATED (?) UTAH HONEY, AGAIN.

ON page 154 we made the statement that pure honey might contain a small percentage of natural cane sugar. At the time, we were not able to put our finger on the authority. Since that time we have received the following card, which will explain itself:

> For authority for which you inquire on page 154, I think you will find it on page 746, Dept. of Ag. Rep. for 1892, as per Bulletin No. 13. The amount of cane sugar to pure honey is there given as from 8 to 10 per cent. HAM. SMITH.
>
> Ionia, Mich., Feb. 20.

Upon referring to Bulletin 13, page 746, we find that Mr. Smith is correct, and what we said on page 154 was substantially right. The following, from S. T. Fish & Co., will explain itself:

> *Mr. Root:*—In the last issue of GLEANINGS, page 154, you give space to the fact that Mr. Jankovsky, of Cleveland, Ohio was arrested, and that Professor Smith, a chemist, claimed his honey adulterated. Mr. Jankovsky writes us that he put up the honey in the same condition as received from us, and we wrote him that, if he did so we guaranteed it pure. In order to do ourselves justice, we wrote the producers and got their affidavit that they did not feed sugar to the bees. With sugar selling at from two to four cents per pound higher than honey, it does not seem possible that this commodity would be fed to the bee, when but three-fourths of the sugar that is fed would be stored in the combs and the other fourth be consumed in the secretion of wax and for the brood.
>
> In order to find an authority who would pass a different opinion from Professor Smith's, we sent a sample to the United States Department of Agriculture, and received the following answer:
>
> *Messrs. S. T. Fish & Co.:*—The sample of honey forwarded by you February 14th was duly received, and was entered on the books of the Division of Chemistry as Serial No. 12965. The sample was marked "Lot 5362." On examination it proved to be free from commercial starch sugar (glucose), or added cane sugar. As these are practically the only substances used to adulterate honey, the sample is probably pure. Respectfully,
>
> G. L. SPENCER,
> Acting Chief of the Division of Chemistry.
>
> We continue to guarantee this honey strictly pure and unadulterated, and we will await with much interest the outcome of our Cleveland customer, as it appears to us he has a suit for damages.
>
> Respectfully, S. T. FISH & CO.

"THE WORLD IS OUR PARISH."

IF there is any one thing in which we take pardonable pride it is the fact that our journal does not bear the least trace of *localism.* So far as any particular locality is concerned it tries to represent and give due prominence to the bee-keeping interests, not only of every important place in the Union, but of every important honey country in the world. Latterly the big German bee-keepers have been receiving due prominence through our correspondents, Mr. Karl R. Mathey and Mr. C. J. H. Gravenhorst, the former of whom is just now telling us about bee culture in Russia, through which country he has traveled. California is well represented now by Prof. Cook and our old friend the irrepressible Rambler; Texas by the Atchleys; Australia by several good writers; China and Burmah by several of our missionaries; Syria by Ph. J. Baldensperger, now stationed in France; Mr. Malan in Northern Italy; Illinois by Dr. Miller; York State by G. M. Doolittle — in fact, we shall have to stop, for if we go on we shall have to mention several other States in the Union as well as several more foreign countries. "The world is our parish," as Wesley said.

CHEMICAL ANALYSES OF HEDDON'S HONEY.

For several years back reports have been coming to us, to the effect that James Heddon, of Dowagiac, Mich., was selling honey adulterated with glucose. Believing him to be a good straight man, and one of the veterans among honey-producers, we assured each one who wrote us that there must be some mistake, for we said it was not possible that Mr. Heddon could think of doing any thing so unwise and foolish. At the Ohio State Convention in Cleveland, however, held on the 19th and 20th days of February, 1890, a sample tumbler of honey was shown us, after one of the sessions, said honey having been purchased of one of Mr. Heddon's customers. I had a talk with the man who brought the honey, and I told him that, from my acquaintance with such mixtures, I was satisfied in my own mind that the sample contained a large per cent of glucose. The matter was talked of more or less between all the sessions by quite a number of the bee-keepers; and although we discussed it in a quiet way, a reporter for a large daily got hold of it and had it written up in flaming style. As soon as Ernest got wind of it, he buttonholed the reporter and desired him to keep the whole out of print because he (Ernest) thought there must be some mistake, and there the matter dropped. Complaints still kept coming, however, and finally, by my direction, Ernest asked a well-known bee-keeper to purchase two cans of honey from Mr. Heddon, and forward them on to us. This bee-keeper did so, and also sent an affidavit to the effect that the *same* honey was reshipped to us without taking from the depot, and this *we have in our possession*. The honey was received with Mr. Heddon's tag attached to the cans, and it seemed to be (judging from the taste), adulterated largely with glucose, and a poor quality at that. A sample was submitted to Prof. H. W. Wiley, chief chemist at Washington, D. C., through Prof. Cook, and here is his report:

Prof. A. J. Cook, Agricultural College, Mich.

Dear Sir:—The sample of honey sent by you on the 20th inst., numbered 100, has been entered as Serial No. 11653; on analysis it gave the following numbers:

Direct polarization at 23°	56 3
" " " " after inversion	48.7
Sucrose (calculated from above readings)	5.8%
Reducing sugar, calculated as dextrose	58.11%
" " " " invertose	59.95%
Water	21.30%
Ash	.28%

The sample is undoubtedly adulterated with at least 50% of glucose, although, as you know, it is not possible to determine the exact amount on account of the difference in rotation of the various glucoses.

Trusting that this analysis will be satisfactory, I am,

Respectfully,
H. W. Wiley, Chemist.

(11653--E. E. E.—J. S. C.)
Washington, D. C., Apr. 1, 1893.

A sample was also submitted to Prof. Cook, and was by him also pronounced adulterated with glucose.

You may ask why we did not write to Mr. Heddon in regard to this thing. We did so, but received any thing but a satisfactory answer.

I believe we practice and preach that kind of charity that "is kind, and suffereth long;" and that is the reason why we did not publish the analysis before; but the affidavit below, of a more recent case, it seems to me, *demands* that the bee-keepers of our land be notified of these things.

The State of Ohio, Cuyahoga Co., ss.

Personally appeared before me, John C. Hemmeter, a Notary Public for and within said County, Geo. G. Willard, who being by me first duly sworn upon his said oath says:

That he is conducting a general merchandise business at No. 270 Pearl Street, in the city of Cleveland, County and State aforesaid.

That on or about the 15th day of November last, affiant received a shipment of honey from James Heddon, doing business at Dowagiac, in the State of Michigan; that said honey so shipped and received by the affiant hereof was represented to be a pure and unadulterated article; in accordance with said statement of representation of its purity, did authorize the selling of the same to the trade by his agents. That on or about the 7th day of December, following, one of the affiant's agents was arrested by the State authorities, for offering and selling an adulterated and impure honey, and subpœned to appear for trial before a legal tribunal, having jurisdiction in the premises; affiant, in conjunction with said agent, appeared in said Court on the day set for trial, heard the hearing of said agent, and all the witnesses in connection with the case, including that of the State's Chemist.

That the judge, after summing up the evidence, rendered a verdict as charged, and fining said agent twenty-five dollars and the costs of prosecution (aggregating the sum of $64.85), which amount the affiant hereof paid.

Whereupon affiant procured another sample out of same shipment, and delivered same to Professor Hobbs (being the Professor of Chemistry at the Cleveland Medical College) for further analyzation, who, upon performance of the same, coincided with the State Chemist, in pronouncing it "adulterated and impure." Further, affiant saith not.

Geo. G. Willard.

Sworn to before me, and by the said George G. Willard, subscribed in my presence this ninth day of February, A. D. 1894.
John C. Hemmeter,
Notary Public.

The so-called "cheap honey" Mr. Heddon has been advertising for a number of years, together with his recent utterances on the glucose question, and which we have criticised, seem to give coloring to the statements of the *four different chemists*.

We have statements from other parties, not depending upon analysis, but think best to withhold them for the present. In conclusion, we would say that we have given the facts for just what they were worth, and the reader may draw his own conclusions. A. I. R.

OURSELVES AND OUR NEIGHBORS

BY A. I. ROOT.

Count it all joy when ye fall into manifold temptations.—JAMES 1:2.

If I remember correctly I have used the above text before. In fact, it has been a marked and singular text to me ever since I first found it. We are so often exhorted to beware of the tempter, and to pray that we may not be led into temptation, that it sounds a little strange hear the old veteran servant of Christ tell us to to *count it all joy*. In the new version the word "divers" is changed to "manifold." "Count it all joy, my brethren, when ye fall into manifold temptations." And the margin suggests that the word "temptations" might be translated "trials." "Count it all joy when ye fall into many trials." If you ask for an explanation, the very next verse suggests: "Knowing this, that the trying of your faith worketh patience;" and the new version puts it, "Knowing that the proof of your faith worketh patience." The idea seems to be, that we grow strong and able and useful by being tried. My thoughts were turned to this subject recently by some experience of my own. Sometimes I have thought I would stop telling my experience; but when I stop telling my trials that have brought me to study my Bible more, and to know my Savior more, then I stop getting letters of encouragement. By the way, these letters and words of encouragement are more helpful to me than you may imagine. While at the recent Chicago convention, during a recess quite a number gathered around me, and some were inquiring if that was A. I. Root. One old gentleman made me recall who he was by referring to the correspondence of past years we had had together. Just as he was obliged to go away, because so many others were around, he put his head close to me and whispered, "Brother Root, I am a *better man* for having known you and for reading your writings in these past years." The remark was loud enough, however, so that somebody overheard it. I do not know but I took the liberty of repeating it to the other friends, as it helped us to get acquainted some. Well, I was quite a little surprised when one after another extended his hand, saying, "Brother Root, I too can say that very same thing." And others rejoined, "And I!" "And I!" And then we had a big laugh all around.

A few days ago one of the "big guns" in the work of the Farmers' Institute—one who has labored in Ohio and many other States—came to see me, and we were over in the little greenhouse just before train time. As he put out his hand in going away he said something like this: "Brother Root, we read Talmage's sermons almost every week, and they do us good, and we thank God for such a man as Talmage. But I want to tell you, before parting, just for your encouragement, you know, that we think at our house that your sermons sometimes come a little nearer home than even those of the great preacher Talmage."

Well, I have watched closely, and I have read these kind words of encouragement from men and women from afar off, and I have tried to let them guide me, that my work may be still more helpful to you all; and, if I catch the spirit aright, I am forced to believe that it is God's will that I should tell you of these conflicts that I have.

Just now our nation is pretty full of sin and crime. There are jealousies and hatred rampant in the land. There is disagreement and bitterness. There is a wonderful lack of the spirit of Christ Jesus. What shall we do? Where is the remedy? When we feel ourselves being drawn into the meshes of Satan's net, where is the remedy? Do we recognize in the very outset when we are getting thus entrapped? Do we *know* when we are getting out of the track—that straight and narrow track? Yes, I think we do; and the best remedy for sin and crime is to foil and disappoint the prince of darkness at the very outset. And now for my little experience of late.

At this season of the year a good deal devolves upon me. A good deal of authority seems to be vested in me; and while, as a general rule, I succeed in keeping out of sight the fact that I am "boss," if I choose to be, yet notwithstanding I am strongly tempted many times to use that authority. You know my teachings have been, at least ever since I have become a Christian—to rule by gentleness and love—at least, where it is possible so to do. You know how often I have quoted, "Love ye your enemies, and do good to those that hate you." Why, I have repeated this text so much that *I* ought to be ashamed of giving way to any feeling of spite or even vexation. Oh dear! if some of these friends who have said such kind things by word of mouth or by letter only knew of the feelings that oftentimes sway me to and fro, I am afraid they would lose confidence and faith—in me, at least. And yet—why, as sure as you live, the text we are talking about says, "Count it all *joy* when ye are strongly moved," or when you feel inclined to do wrong. Of course, we are not to count it all joy when we *give way* to wrong impulses.

Well, something displeased me. I did not think much about it at the time, but some way it got to running in my mind. I put it away; but Satan whispered that, where people were bent or determined to rush into trouble it was not particularly my affair. In my feeble health Satan said (since I have not been able to take any long rides on my wheel I confess I have been getting a little under the weather)—well, in my feeble health, as I was saying, Satan suggested that people must take care of themselves, and that it was certainly not my business to be looking after *every*body. The temptation held out was, mind you, not to throw so much as even a straw in a certain person's way, but simply to let him have his *own* way. Sometimes it is hard for people to learn that there are sins of *omission* as well as sins of *commission;* but surely one who has talked these things over as much as I have ought not to need any light or instruction in that line; and I confess the idea was quite fascinating—to just attend to my own affairs—and there are many of them (enough to take every minute of my time just to attend to my own affairs)—and to do every thing as well as I knew how, and to let *other* people attend to their own affairs. A trifling matter, was it not? But I knew the spirit was not a right one. It was far from being a loving spirit—that is, from the spirit that enjoins us to love even our enemies. But the thing kept coming back and taking my attention. A better spirit suggested, as of course it would, that community, and especially my good friends, would look a little surprised and astonished. They might say, "Why, Mr. Root, did you not know this was going on?" Well, the evil one replied to this by saying I need not know—why should I? I could not be expected to know about *every* thing. But there would be at least a little prevarication here. I profess to be a Christian. I profess to value my peace with God more than all things else. But there can not be any peace with God when you are making excuses, or when you are, even in your own mind, trying to persuade yourself that something *is* so when you know it is *not* so. A young Christian enjoys going to meeting, prayer-meeting, and Sunday-school, when he first gets into the church. In due time, however, old thoughts and feelings come back. He says to himself, "I do not want to go to meeting to-day. There is not anybody who goes to hear *every* sermon that is preached. Why shouldn't I stay at home as well as others? Besides, I do not feel real well this morning, any way."

Do *you* know, my friend, that this is dangerous ground for a Christian to stand on? Suppose you answer before God, "Are you staying at home because you do not feel well physically, or are you staying at home because you do not feel well spiritually? Where is the real truth? or why do you want to stay at home—because you do not feel well? or is it rather because you do not feel like going to meeting? Is it the physical or the spiritual part that is just a little ill?" If it were the *spiritual* part, you need *above all things* to go to church, and have that spiritual part cured. If you do really value your peace with God, you will certainly lose it if you listen to your inclinations, and let laziness come before duty. Sometimes we have a headache; and with the little headache we have a good deal of laziness—spiritual laziness—that is, a disposition to hang back, and to give way to feelings that are not praiseworthy feelings at best. As you value your peace with God, dear friend, be honest with *him* at all hazards. "God is not mocked." I have been all over this again and again. I have tried going to meeting, and I have tried staying at home; and I have taken a sort of invoice of my spiritual condition Sunday night as I went to bed, and I never yet felt blessed in staying away from places of worship; and I certainly never felt blessed in making excuses in my own mind that are not well founded.

Well, I had prayed again and again that God would help me to put the whole matter out of my mind; but for some reason or other God did not see fit to grant my request. I was not particularly surprised at that, because God does not always answer our prayers by giving us exactly *what* we ask for. There seemed to be a sort of fascination about dwelling on the matter—an unprofitable dwelling; in fact, it was quite the reverse of being profitable. I would sometimes get up vehemently—mentally, of course—and say, "Get thee behind me, Satan;" and Satan would travel off with a rush. But when I sat down at work again, before I knew it he was looking over my shoulder, and whispering in my ear. I presume many of you have had similar experiences. Have you not said to yourself, "Bother take the whole matter; I wish I could never *think* of it again"? But it had got too well started; it made me think of a puppy that is bound to follow you when you want him to stay at home. You chase him clear back to the house, and then keep watch; but just about as you begin to be satisfied he is not coming any more, there he is, close to your coat-tails again.

A week passed. The temptation was gaining ground. Instead of chasing it away as I had been doing, I began to look at it curiously. It began to exhibit new phases, and I knew it was sin or the evil one that I was dallying with. There was a sort of fascination about it in this way. I have talked with many criminals in our jail, as you know. Sometimes I read accounts of terrible tragedies, in papers. What is it that gets into men's hearts, and moves them to such folly? Why, it is the very same chap I have been scraping acquaintance with for a few days back. Something suggests that, may be, if I knew more about him I could more successfully fight him and warn people against him. Our entomologists, when they want to destroy an injurious insect or fungus, first get most fully acquainted with the enemy. Here is a chance for me to study all about the cloven hoof.

Now, there is truth and error mixed up together right here. It is true, as our text tells us, that it is a good thing to be tempted and tried—yes, severely tried; but it is a tremendous error to think we are called upon to step out of the right way to *find* temptation.

My test in all these years back has been something like this: How does this thing affect your spirituality—your love to God and to your fellow-man? I was obliged to say, promptly and decidedly, "I am losing my ground spiritually." Finally this matter was taking so much of my thoughts that sometimes I did not realize what I was doing. I remember of going down to the greenhouse to open the ventilators wider; but instead of having my mind on my work it was so much on this other thing that I closed them up, endangering my plants. I looked around to see if anybody was watching. My friends might have noticed that I was at times abstracted, but perhaps they did not.

Are we really forgiving a person when we say we want nothing more to do with him? That old familiar Lord's prayer that we have so often on our lips says, "Forgive us our debts as we forgive our debtors." When we ask God to forgive us for a wrong that we have confessed, we expect him to feel toward us as if it had never happened. And right here came an experience that troubled me. I could not forgive nor overlook the wrong; that is, it did not seem to *stay* overlooked nor forgiven. Well, one day, quick as a flash, it burst in upon me that I was committing exactly the same offense that I was severely censuring in another. Some of you may have read that wonderful little book, "The Manliness of Christ." Every thing about Christ *is* manly, straightforward, and noble. Even his enemies acknowledged that much. But every thing about Satan is cowardly, mean, and ignoble. Here we see an illustration of it. The thing that I could not tolerate in another, when I was the transgressor *myself* assumed a far different phase. When I first became conscious of it the telltale blood rushed to my face; and as I was in the presence of busy workers all around me I felt like hiding my face to conceal my guilt and shame. You see, these experiences give me new glimpses of Bible teachings. "Why beholdest thou the mote that is in thy brother's eye, and considerest not the beam that is in thine own eye?" Yea, verily, why is it? It is because, as the Bible tells us, "The heart is deceitful above all things, and desperately wicked. Who can know it?" If I ever had any temptation to think I was getting to be any thing like a saint, the experience of the week fairly took it out of me; and I could say with more sincerity, perhaps, than I ever said before, "Lord, have mercy upon *me* a sinner."

It was Sunday morning. I knew I should have a tussle. If Satan ever works hard it is when he succeeds in going with you to the house of God. He will keep your mind from the sermon, if it be a possible thing. He will persuade you to stay at home if he can. If he can not do that, he will go to church with you. When you get inside he will persuade you to sit down near the door, or as far from the minister as he can. Oh! I know him, you see. He and I have been in sight of each other, at least, for nearly twenty years. Before I was a Christian I used to sit away back; but now I want to be close to the minister. The adversary does not like being drawn right up under the pulpit. You get up close to the minister, and you will stand a "right smart chance" of getting away from Satan—at least, for the time being. I sat, as I always do, close to the pulpit, sitting on next the front seat. When the church is full I very often sit on the very front seat; in fact, I rather like it. I like the idea of a full church, so that even the front seats are well filled. Well, on this particular Sunday morning I was close up to the minister. It was an anniversary service. There were three ministers in the pulpit, and there was a good deal of spirituality in the house and in the community. One of our old pastors—in fact, a companion of my boyhood, who has become a great evangelist and Sunday-school worker—commenced reading the 10th chapter of I. Corinthians; and I knew, as soon as he started, that help was coming for me right in this chapter. If every minister of the gospel, as he reads and speaks, could know of the mighty work he may be doing in some heart all unconsciously, what an inspiration it would be to him! I remember the 11th verse:

"Now, all these things happened to them for ensamples, and they are written for our admonition."

During the days I have been telling you about, I had been wondering if it were possible that other people—the world at large, as well as we Christian people—were having such fierce tussles with evil and sin as I am continually having. Two or three times—yes, once quite recently—the thought had forced itself into my mind, "Why, Mr. Root, you are no Christian at all, and, in fact, *never* was." A good many times I only laugh when Satan puts in such a speech as that; but once or twice of late I have begun to fear that it were possible I might in *time* become a castaway. Since God in his gracious kindness gave me at my conversion a glimpse of heavenly things I have never doubted—no, not for one instant—and I never shall doubt that divine revelation, no matter what may happen. If I am lost, I shall be lost with a full and complete faith in a heaven and a hereafter, and a loving Savior; and of late I am beginning to have also a pretty complete faith in a personal Satan, and in a realm for the lost—lost by their *own free choice*. Well, now, I want you to listen to that 13th verse, and I pray that God may help you to hear it and understand it as I did. Here it is:

"There hath no temptation overtaken you but such as is common to men."

That means that we are *all* children of Adam. We all have evil impulses. Sometimes the friends in jail and some other friends as well, suggest that criminals are "*built*" differently from Christians. They say to me, "Oh, yes! but *you* are not *built* the way *I* am. You do not know any thing about these things." My friends, I am built just exactly like the criminals that fill our jails and penitentiaries; and but for the grace of God I should not be one whit better. Now let us see about the rest of the verse:

"But God is faithful, who will not suffer you to be tempted above that ye are able; but will with the temptation also make a way of escape that ye may be able to bear it."

There was comfort in the last words of this verse. If Satan had got up in front of the pulpit that day, he sneaked back, out of sight; and my opinion is, that he concluded that Congregational church filled with people, especially while those four devoted servants of God were there occupying the pulpit, was the most unpromising place for his work, to be found in this country.

A saloon-keeper in jail told me a few days ago that he believed Medina Co. was the worst place for a saloon-keeper that there was on the whole face of "God's earth;" and I shouldn't wonder if his boss partner in the business thought just as he did. Within the next few minutes, or perhaps during the next hour, I should say, there was an unfolding before my spiritual and mental vision such as I never had before of the power of the gospel of Christ Jesus to mend, correct, and purify our land, and redeem it or emancipate it from evil. There was such a glimpse pervaded *my whole being*, as I had never felt before. I felt like shaking myself and saying in the language of my old favorite text, but which for a few days I had almost forgotten, "O ye of little faith! wherefore didst thou doubt?"

Just one word more: A good many people have been greatly troubled because the New Testament has so much to say about people being possessed with devils. Nobody objects, that I know of, to the idea that people are sometimes "possessed;" for I heard a mother tell her children that they *acted* as if they were "possessed." But the idea that, even now, during this present 19th century, the idea that people are possessed with *devils* seems to be too much for a certain class of people to believe. Come to think of it, however, haven't you seen people again and again who were so much in the possession of some evil impulse that they could not attend to their legitimate tasks? Haven't you seen people act as if they did not know what they were about, because they could not forget some grievance, fancied or real? Did you ever see two farmers get into a quarrel about a line fence? Sometimes the whole neighborhood takes sides in the question. They neglect their crops, and waste their time over a few feet of land that does not amount to any thing, either to them or anybody else. They go into a lawsuit, waste their money, and then have a fight, oftentimes, that ends in murder. Are they not really possessed with something? and is not it the "something" of the kind that stays away from church, or does not get very close to the pulpit? of the kind that objects to hearing the Bible read? Well, you may call it what you like. I think I should say they were possessed of an evil spirit; and the best medicine for that evil spirit, that the world has ever yet invented, is given in the New Testament. In fact, it is so potent that reading it over will often completely banish the fiend. Why, yes; sometimes a single verse, as in the case I have mentioned, banishes the demon and leaves the human soul clothed and in its right mind, sitting at the feet of Jesus, obedient, and ready to be taught.

HIGH PRESSURE GARDENING

GOOD SEEDS, ETC.; IF WE PAY FOR THE BEST SEED, DO WE GET IT?

Since this matter has come up in regard to onion seeds, I have been a good deal troubled. In many of the seed-catalogs you will notice different grades of seeds. For instance, we have Yellow Danvers onion, at $1.00 per lb. Then we have Yellow Danvers, *Buxton stock*, at two or three times as much. I do not know any thing about the above stock; but the wholesale seedsmen seem to think the word "Buxton" is a sufficient recommendation to warrant them in asking $200 for 100 lbs. of seed, and this at wholesale. Again, I notice in one of the wholesale catalogs, "Chicago Market nutmeg melon, *Colvin's seed*, $2.75 per lb.;" and just below it we see ordinary seed (from Colvin's stock) only 38 cts. per lb. Just think of it!—five or six times the price wanted for genuine *Colvin* seed, while the cheap seed is *raised* from the Colvin stock. If this meets the eye of some of the large seedsmen, I wish they would explain, for the benefit of our readers, what *makes* this difference. Again, we see Osage melon, *true stock seed, $2.50 per lb.* Ordinary seed, raised from stock seed, only 33 cts. per lb. And so this goes on all through.

There is one thing that is rather encouraging to me in these wholesale catalogs. Every little while we find certain seeds marked "Crop failed." We notice this after the Hoosier King watermelon. Well, why didn't they buy some Hoosier King of somebody whose crop did *not* fail? or is it something so new and rare that nobody else had it? Landreths, in their lists, frequently say of some pretty staple varieties, "Crop failed."

Some years ago, when I visited Rawson's grounds at Arlington, near Boston, some of you will remember that I saw some beautiful cucumbers on a bench. Of course, they were too large for the table; but the shape was superior —in fact, they were such models of what we want in the way of cucumbers—that I inquired about them. The foreman told me they were for "stock seed." When I told him I wanted just a *few* of the seeds he said Mr. Rawson did not permit them to give away or sell a single seed of this extra choice White Spine cucumber. Mr. Rawson was absent when I made my visit; but when he found I had written up his grounds he made me a present of some of the seeds from those choice cucumbers. We planted them on the creek bottom, and the season, I believe, was quite favorable. Well, we had an immense crop of the finest and nicest cucumbers that it was ever my good fortune to raise. We sold them all over our town, got a big price for them because they were so handsome, and sold more cucumbers than we had ever sold before or have sold since, and we got an *extra* price too. Why didn't I save some seed? Well, I was too stupid. I though I could buy some of Mr. Rawson, just like it, and that he could save them cheaper than I could. The following season I did buy some of him, and paid him $3.00 per lb. for them. You have, many of you, bought them of us, and tried them. I bought the seed for stock seed, and we all paid a big price for it accordingly. I think that was four or five years ago. Well, I have never had any cucumbers since like that lot I have mentioned. I tried them on the same ground, but we have had such exceedingly wet seasons that I attributed the failure (partly, at least) to that cause. Well, I have tried them in the greenhouse and on other grounds. I have tried them beside ordinary White Spine seed, and I really could not see *very much* difference. May be there was some difference after all. Perhaps I may be putting it too strongly.

At one of the national conventions of seedsmen, somebody told a laughable story about a woman who was a gardener. She was somewhat illiterate, but she knew the difference between extra seed and common seed. She asked the prices. They told her. Then she looked the dealer square in the face and propounded the following: "Look here. If I pay for the best seed do I get it?" The man who told the story did not say what reply he made. Now, will our experiment stations please help us in this matter by planting some White Spine cucumber seed, worth 30 cts. per lb., and some that costs $3.00 per lb., and tell us the difference? Will they please try Chicago Market nutmeg melon and Osage melon in the same way? Why, I would give this minute $10.00 per lb. for some cucumber seed that would produce a crop like the one I have told you of. Mind you, I do not know that it *was* the seed that produced the crop. And, again, I do not know but it was. Will the experiment stations tell us what they think about it, or what they have already learned in that line? How much have the seeds to do with the outcome? Then there is another trouble. If it really transpires that a certain strain of seed is worth four times as much as that generally sold in the market, we shall be in the same fix as the poor woman—"If I pay you for the best seed, do I get it?" Some of you may say, "Why, look here, Bro. Root. You are a seed-dealer yourself. How would *you* answer the poor woman—"If I pay for the best, do I get the best?" That is just what troubles me. If you pay for the very best seed, I am not really *sure* that you will get what you expect and what I expect; and have actually meditated giving up selling seeds because I can not give it the brains and attention it ought to have. This I do insist upon: Every seedsman should have experimental grounds. He should have a test garden where the great wide world—his customers—could be invited in order to see tests and trials made of the seeds he sells; and I should really like to have the name of the man who grows the seed put conspicuously over the crop. Where is there a seedsman who dare do this? One spring we had a customer who said he wanted 10 lbs. of a certain strain of cabbage seed, providing the seller would tell him who grew that seed. I asked different seedsmen if they could fill the order under these conditions. I did not find *one* who was willing to tell who grew the seed. In fact, one of them felt a little hurt when I personally mentioned to him the matter. He said that was his own private affair as to who grew his seeds. There may have been some reason in his position, for the grower might be greatly annoyed by correspondence he did not want; and he might be annoyed by orders for seeds when he did not wish to have a retail business on his hands. Nothwithstanding this, I believe the experiment grounds might have a card telling who grew the seeds that produced a certain crop; but he might also say the entire crop belonged to seedsmen. Terry plants his whole farm to Freeman potatoes; but he keeps saying all the time, "Don't write me for potatoes, for I haven't a potato to sell." J. M. Smith is obliged to do the same thing. Now, let these men who grow potatoes or seeds state clearly that they are *growers*, not retailers. I suppose very likely it is Terry's name that has given the Freeman potato a part of its great boom. Terry's name, in his strawberry-book, has also created a big demand for the tart Sterling strawberry; but yet Terry keeps saying he is not in the strawberry business. In fact, he throws away a wagonload of plants every fall in thinning out his beds, because he would rather throw them away than to be bothered with selling them.

Just now we are retailing great handsome heads of cabbage for 30, 40, yes, even 50 cts., a head. They are Holland cabbages. I believe they are larger and finer than any thing I ever grew. Hold on! Seven or eight years ago, when I spoke of these same beautiful cabbages imported from Holland, some friend in the old country sent me some seeds; and from those seeds I raised the finest cabbage we have ever had, before or since. I supposed then, by buying the cabbage seed to be found in our catalogs, I should get just as good as what was sent me. I have never found it; and if some of our friends in Holland will send me some more seeds like those they sent me before, I will gladly give $10.00 per lb. for them. May be the seed sent me was worth more than that. I do not know how much such Holland cabbage *might* be worth. In the first place, the seed was extra large. It produced the finest, healthiest, and strongest plants I ever saw. Now, hold on! I *do* remember that I planted the seeds after sifting guano and lime into the seed-bed. This helped to give them their vigor. But I did the same thing with the other cabbage seed. The Holland cabbages grew better than any thing I ever saw, before or since; and they kept right on growing, and they made heads almost but not quite equal to the imported Holland cabbages. I am sure the seed had something to do with it.

Perhaps in the above I have told more what I do *not* know than what I *do* know; but I am sure it is in a direction where our people need advice and instruction.

You know I once paid $50 for half a pound of Grand Rapids lettuce seed. I paid it because I saw the crop right before my eyes. It is true, I did not see it by daylight, but I saw enough by *lantern* light to warrant me in taking the chances of investing my money. It was the best investment in the way of seeds I ever made in my life; and then and there I gave it the name it now bears, and sent samples of that half-pound of seed broadcast almost all over the world; and now the Grand Rapids lettuce seed is cataloged and recommended by almost every seedsman in the world. It has been worth thousands of dollars to the gardeners, especially the greenhouse gardeners, of the world. Please do not think that I am finding fault with our seedsmen. There is not a season that passes but that surprises me because they do as well as they do. I have bought seeds more or less of almost all who send out nice catalogs; and I am actually astonished to find every thing so good and true, especially with the vast multiplicity of kinds. The catalog I have been quoting from offers for sale 35 different kinds of muskmelons, and other goods in proportion. As this seedsman gives prices by the *100 lbs.*, on most of them, I am forced to believe there is a regular and steady demand for the greater part of them.

UNCLE JAKE TALKS TO US ABOUT THE DIFFERENT QUALITY OF ONIONS.

A. I. Gleenings—deer Sir:—I see you're great on onoins. Did you ever eat em biled in milk? They haint so rank that way. We never thought top onoins, potato onoins, or multipliers, was as good as the old-fashinned sort. You ask about what's become of the old-fashinned, top onoin-sets. Well, now, they haint so old-fashinned, and, what's more, they haint near so good, to my notion, as the sets raised from black seed—little injens we always called em. Isaac Tillinghast tells about raisin an acre of em, but the rest of you all seems to run to tops.

Now you git some of the regler old-fashinned sort, plant em middlin early, then when they git about a foot high, with buttons about as big as your finger, some hot day when you're pirty hungry, jist pull some of them injens, and let your wife dress em and put em in a tumbler of cold water onto the table. They make a hansome ornament. And they taste jist lushus. It makes my mouth water to think of it. The way to eat em is to take some good bread and butter, dip the end of the onoin in the salt, and bite off what you want. They haint no cooked onoin can begin to come up to a raw one. Not when they're the right age, I mean. They must be young and delicate. Some likes jist the white part, and eats tops and all.

If you can't git the little onoins to plant, you can raise some yourself, and then you can have them for next year. Plant the seed in drills offle thick. Then you see they can't help but grow little- haint got room to grow big. Some takes a barrel and rolls over the bed to break down the tops and stop them growin; but if you put in the seed thick enuff that's enuff without the barrel.

JAKE SMITH.

[Very good, Uncle Jake. The point you make is an important one; and since you mention it, I believe I have heard people say that onions raised from black seed, or, if you choose, sets raised from black seed, give milder and pleasanter onions than those raised from old-fashioned top sets, and this improvement in quality is probably the main reason why onions raised from top sets are going out of use and out of the market. If, however, any one wishes to buy them at the prices quoted in the seed-catalogs, I should very much like the fun of the raising. I have just sent and got samples that are advertised at $5.00 and $6.00 a bushel, and they have not even pulled the top sets apart and prepared them in nice shape for planting, throwing out the dry shells, etc. Somebody asked one of our agricultural editors why people did not all of them plant sets instead of seed. The reply was, that sets were so expensive that they were never used except for getting extra early onions for bunching. The sets produce bunching onions a good deal earlier than where the seed are sown in the open air, but the expense is so great for the sets, and for planting them one at a time, that, unless we get great prices for the crop, it will not pay. Now, the new plan of raising onion *plants* in the greenhouse comes right in to compete successfully with the onion-*set* business. Let us bear in mind that we can not afford to buy onion-plants, nor onion-sets either, except to plant them very early indeed, to produce very early crops and get big prices. Now, I wish others would let me know if it is true that the old-fashioned top sets produce onions of inferior quality. The Egyptian onions grow from top sets in this way, and most people have found out now that these onions are strong, and of poor quality. They are so very hardy, however, that people will buy them when no other kinds of green onions can be obtained. How about the quality of the new *white* top sets advertised in some of the seed catalogs?]

ONION-SETS—A QUERY.

I raised 2½ bushels of onion-sets last year from ¾ lb. of seed. What has been your experience in raising sets? and when is the best time to pull them? Will they not be all right to pull when they are large enough for sets?

Steamburg, Pa. MERRITT BALDWIN.

It would seem, from the inquiries made through the various agricultural papers in regard to raising onion-sets, that there is a great lack of information in regard to the subject. The question above, as I understand it, is this: If you sow your seed very thick, can you get onion-sets by pulling and curing the onions when they are of a proper size for sets? Well, this depends. If you have dry weather, or your ground is poor, or any thing gives the plants a setback so that they mature small bulbs instead of making onions, your plan will do all right. A neighbor of ours sowed an acre of Globe Danvers, and expected to get several hundred bushels of onions. In consequence of the dry weather, however, they stopped growing, and many of them began to ripen up, making bulbs so small that the greater part of the crop was only sets instead of onions. By taking a great deal of pains in curing and sorting, he managed to get several bushels of very good sets, and quite a good many that were too large for sets; and, if I am correct, a good many more that did not make sets or onions either—in fact, they did not produce a ripened bulb at all—only some thick-necked half-grown onions that might have been used for bunching and nothing else. To get nice sets you want poor ground or dry weather. You may remember a correspondent in Gleanings said they always raised their sets near *large trees*. The roots of the trees carried off the moisture and fertility so that the onions were obliged to make little bulbs. On good rich ground, with plenty of water, when onions are of the proper size for sets, they make thick necks, for they have not yet commenced to make bulbs; and if they were pulled and cured at this stage, you see they would not be just what is wanted for sets in the market.

SOMETHING FURTHER IN REGARD TO ONION CULTURE, CLEAR FROM "MERRIE ENGLAND."

Mr. Root:—That time when you had a bed of onions, one end of which was nice and soft and rich, the other stiff and hard, the hard end did not please you at all, yet the onions did best there. I thought you knew how to grow onions; but from later articles in Gleanings I see you have not taken the hint. Try this plan: Manure the bed with good heavy cow or pig manure (horse manure is too light); keep the manure near the surface; tread all over the bed, and make it solid and firm. If your onion-plants have been raised in heat, see that they are properly hardened off. Plant with a trowel; with the point of the trowel scrape away the soil about an inch deep. Spread the roots; put back the soil; press firm; scrape some soil up around the plant in a little heap. When you cultivate among them this will come away and leave the onion standing on the surface. Top dress in your usual way. Deep loose planting will make good seed grow thick necks.

Greenlaw, Eng., Jan. 1. Robert Douglas.

TURNIPS.

We have had some experience during the past few years in the matter of growing turnips as a market-garden crop, and therefore can not refrain from giving to the public something of the impressions and opinions formed thereby. We have found an excellent demand for really good sweet-flavored turnips, in neighboring towns and cities; and we now do not have much trouble in producing good crops. Formerly we practiced to some extent broadcast seeding, but have turned over an entirely new leaf in that respect. Under that plan the plants come up by the scores where we want but a single one; and the operation of thinning them properly is too long and tedious to be thoroughly performed; hence the natural result is, we have many weak and spindling plants with few good roots. On the other hand, by drilling the seed in rows two and a half to three feet apart, good culture may be given from the beginning, with horse-cultivator. Thinning to from 4 to 12 inches apart in the row (according to variety of turnip) is a comparatively simple and easy operation that can be largely effected by the dextrous use of a three-cornered hoe.

It is advisable to sow seed of both the small round strap-leaf turnip and the rutabaga also. In this way we have something to suit the various tastes and caprices of different customers—some preferring one, some the other. Of course, the rutabaga varieties must be sown much earlier than the smaller kinds. For them the middle of June or early in July is the time to put in the seed; whereas the strap-leaf turnip may be sown as a second crop any time during the first half of August. For this reason we think the smaller varieties are the more profitable, since they grow very rapidly, are little trouble, and occupy land that otherwise must needs lie vacant and run up to weeds to bother the cultivator next season with their many seeds.

Fresh manures are not good for turnips, as they favor scab and worms. Better use ashe or fertilizers, or have the manure applied several months before sowing turnips, that its rank character may become dissipated. Probably new sod land gives the smoothest, handsomes roots. The great beauty with turnips is that what the market does not want, domestic animals of all classes do desire and thrive wonderfully upon. There is no root more generally useful for stock-feeding than the turnip.

Danvers, Mass., Jan. 15. M. S. Perkins.

[I heartily agree with the above, although did not think particularly about it until I remembered that a good many of our turnip have been coarse and sometimes hollow, through the effect of excessive stable manure used on our grounds. During the past season we sowed turnips on a clover sod after some early crop were taken off. No manure of any kind wa used except the clover turned under. While th turnips did not grow as large as usual, they ar nearly all right for table use; and they ar sweeter and richer than we have had for a good many years. Terry, you know, thinks we ge better-shaped and better-flavored strawberrie on clover sod than where such excessive quantities of manure are used. Another thing these turnips have stood severe freezing weather much better than those of such rank rapi growth.

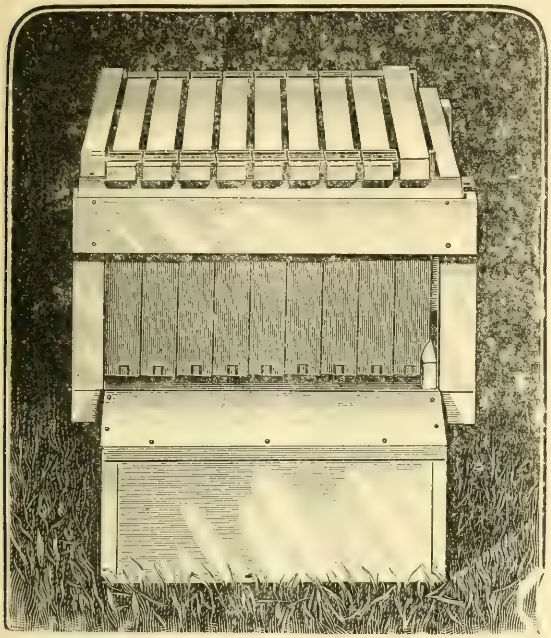
W. I. CHAMBERLAIN AND HIS VEGETABLE-GARDEN

Does it pay to have a garden? The followin from the *Ohio Farmer* is from the man wh wrote our book on tile drainage that is havin such a wonderful sale just now. It is writte in his usual happy style, and comes in quit seasonably:

> The great advantage, too, is that these things ar so cheaply and so easily raised. Six extra early ho house tomato-plants cost me 25 cents. Their fru ripened early in July, while southern-grown tomatoes were still selling at the groceries at 25 cent per pound—a costly luxury. The six vines bore great abundance for our little family, averagin three members. They lasted until the middle o November, brought in green and nearly full-grow at the first heavy frost, and ripened in the house One of the six vines, "Atlantic Prize," set where th "chip yard" had been for years, was the larges vine I ever saw. I "let it run" as the boy did th molasses, and it finally grew over 13 feet long an over 6 ft. wide: covering quite densely an irregula oval space indicated by these dimensions. It mus have borne two or three bushels, ripening all alon for about three months. The bushels of tomatoe we ate cost us 25 cents for the extra early and extr thrifty vines, and almost nothing for their care an picking. It was a grand year for them. Hubbard squashes, planted along the tile ditch that convey the kitchen-slops far from the house, cost us 10 cent for seed, a little care and road dust to clean out th striped bugs, and yielded far more than we can ea in the six or seven months that we can use them If we choose we can save more than 500 times a much seed as we bought—pure Hubbards of fines quality. The celery cost $1.00 for 200 strong, thrifty plants, and probably as much more for work—growing, digging, and packing, roots and all, standing in sand in "Root's bushel boxes" in the cellar Thus we have it crisp and fresh, right at hand al the fall and winter. The beets are packed in sand too, the smoothest and tenderest being selected The parsnips are dug as we want them, and firs boiled and then halved lengthwise and fried *brown*

in plenty of butter. The cabbages are turned heads down on clean drained turf, and covered with cornstalks and a little earth. The lima beans were picked just before the first heavy frost, and lasted several weeks; kept green in pods, in a cool place. John Gould, of Aurora, raises enough for a small hotel; pulls them, pole and all, before killing frosts, and sets poles and vines on end compactly, in a basement, and has delicious green lima beans half of the winter. He has no patent on it. I mean to copy his plan next year, for the lima bean is the most delicious of the bean varieties.

The amount of food and relish we have got out of our little garden this year and previous ones is simply amazing, considering the cost. The Stowell's Evergreen sweet corn was a feast for weeks. The nutmeg melons at breakfast-time are one of the luxuries at the $4-per-day hotels. We had them for weeks at a money cost of 15 cents for seed, for we planted plenty and had more than we could eat. Another year we mean to do better and start all the berries, rhubarb, and asparagus. Who will join us in this means of promoting health and comfort, and of diminishing doctors' bills?



THE

"ASPINWALL."

1. The most perfect Hive ever offered to the public.
2. It has Closed-end Frames, which can be more rapidly handled than any other frame, without killing a single bee.
3. The Top-bars project over the Hive ends, enabling easy and rapid handling of the Frames. This feature favors narrow spaces between the bars, and makes the most perfect non-burr-comb frame extant.
4. They can be manipulated without working with fingers among the bees, or having them daubed with propolis.
5. The hive may be contracted or expanded, as desired.
6. The frames are provided with an improved and rapid method of putting in comb foundation.
7. The frames are L. size. We also make a deep-frame hive L. length.

Send for illustrated circular.

Aspinwall Manufacturing Co., Jackson, Mich.

50c. TRIAL SETS

Of Choice Seeds and Plants.

Our object in offering thus cheap is to introduce our goods and secure your future orders. Please tell your neighbors about it.

Set U—2 Beautiful **Palms,** 2 sorts, strong plants	50c
" B—16 packets choice **Vegetable Seeds,** all different	50c
" E—20 packets choice **Flower Seeds,** all different	50c
" F—10 Lovely **Carnation Pinks,** 10 sorts	50c
" G—10 Prize Winning **Chrysanthemums,** 10 sorts	50c
" H—4 Superb **French Cannas,** 4 sorts	50c
" J—10 Elegant **Everblooming Roses,** 10 kinds	50c
" K—8 Grand Large Flowered **Geraniums,** 8 sorts	50c
" M—24 Fine **Gladioli,** large Flowering Bulbs	50c
" P—6 Hardy **Ornamental Flowering Shrubs,** 6 sorts	50c
" R—6 Choice **Grape Vines,** 6 sorts	50c
One-half each of any two of these sets	50c

Any 3 Sets for $1.25, or 5 Sets for $2.00,

Delivered at Your Postoffice Prepaid. Satisfaction Guaranteed.

Order these sets by the letters. **Send now from this advertisement,** as these introductory sets do not appear in catalogue which contains 168 pages and will be sent free with first order. If none of these sets suit you, and you want anything in our line do not fail to send for it, free, as **we want you to see our prices** before ordering elsewhere. **It is one of the best issued; contains hundreds of illustrations and full descriptions of one of the largest and most complete stocks in America, including many new, rare and valuable novelties. We grow 750,000 Roses yearly; many other things as largely.** Are headquarters for the choicest

Trees, Shrubs, Vines, Roses, Bulbs, Plants, Seeds, etc.

40th YEAR. 1,000 ACRES. 23 GREENHOUSES. LAST CALL, ORDER NOW.

THE STORRS & HARRISON CO., Box 164, Painesville, LAKE CO., Ohio.

COMB FOUNDATION.

Made by an

IMPROVED PROCESS ON NEW AND IMPROVED MACHINES

of my own invention, which enables me to produce

The Cheapest.

Prices on 5 lbs. or more will range from 35 to 50c per lb. Send for prices and samples.

W. J. FINCH, JR.,
931 E. Monroe St., Springfield, Illinois.

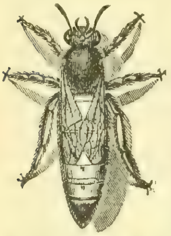
☞In responding to this advertisement mention GLEANINGS.

Control Your Swarms, Requeen, &c.

Send 25 cents for samples of West's Pat. Spiral wire Queen-Cell Protectors, and and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. 12 Cell-Protectors, 60 cts., or 100 for $3.; 12 Cages, 60 cts., or 100 for $5, by mail. Address

N. D. West, Middleburgh, Scho. Co., N. Y.

Sold also by all the leading supply dealers.



THE BEST

is what I mean to give my patrons. Drones from selected queens. Breeders are carefully selected from the best. Personal attention and assiduous care given to rearing queens that they may be of the highest type.

Untested, $1.00; after May, 75c; March and April, 6 for $4.75; dozen for $8.50. May and June, 6 for $4.00; dozen, $7.50. Later, 6 for $3.50; dozen, $6.50. Tested, 3-banded, $1.25; 3 to 5 banded, $1.50 to $4.00. Send for circular for particulars. Make money orders payable here.

J. B. CASE, Port Orange, Vol. Co., Fla.

☞In responding to this advertisement mention GLEANINGS.

Good! Good!

Those wishing the finest and best business bees, both for pleasure and profit, should know that Jennie Atchley is headquarters for such queens. I breed both the 3 and 5 banded strains, at the following prices: Untested (March, April, and May), $1.00 each; $5.00 for 6, or $9.00 per dozen. June till October, 75 cts. each; $4.25 for 6, or $8.00 per dozen. I breed my queens in separate yards, and I have as fine Italian bees as there are anywhere. Nuclei and full colonies. I have one straight merchandise ate on bees by express—lowest in U. S. Fine breed- rs always on hand; 3-banded, $5.00; for straight 5- anded breeders, apply by letter. Also bees by the pound. I guarantee *all* my queens to be good and serviceable, and my fine faultless breeders, unexcelled in the world. Safe arrival and satisfaction.

I also have a carload of A. I. Root's Dovetailed hives and Bee-supplies to accommodate my Southern customers. Dadant's foundation and Bingham smokers. Send for catalogue.

JENNIE ATCHLEY, Beeville, Bee Co., Texas.

NOW IS YOUR CHANCE.

To buy *cheap.* Bee-keepers' Supplies, hives, sections, fdn., etc. Write for price list. ROOT'S GOODS.
JOHN NEBEL & SON, High Hill, Mo.

The Triumph Incubator,

Manufactured by Ed. W. Cole, Kenton, O., is the cheapest and best. Eggs for hatching, from stock which won nearly 300 premiums the past year.
Send for Description and prices.

☞In responding to this advertisement mention GLEANINGS.

Tar-Heel Apiaries, Goldsboro, N. C.

1894 Abbott L. Swinson, Proprietor. 1894

After ten years' experience I breed only **American Albino Italians** and Golden Italians; 3 and 5 banded bees. Queens, $1.00 to $10.00; bees, $1.00 per lb.; nuclei, 75 cts. per L. frame. 200 bu. "Cook's" Long Staple Cotton Seed at $1.00 per bu., f. o. b. Lint is 1⅝ inches, and brings premium of 2 to 4 cents.

☞In responding to this advertisement mention GLEANINGS.

Trego on Deck

With those five-banded Golden Italian Queens for 1894; $1.00 each. Circular free.
S. F. TREGO, Swedona, Ill.

Notice to Kansas Bee-keepers.

I keep in stock a full line of E. Kretchmer's make of Hives, Sections, and other supplies needed in the apiary, at very low prices. Also Italian bees and queens for sale. **A. W. SWAN, Centralia, Kan.**

For Sale An interest in iron-manufacturing business. Capital required, $5000. Will take good paper or securities. An excellent trade taught in connection.
L. L. ESENHOWER, Box 331, Spring City, Pa.

BEE-MEN, Get free Price List of Apiarian Supplies.
F. N. JOHNSON, Knoxville, Ill.

Buff Leghorns, Bred from selected stock (Arnold's), the best of layers, hardy and beautiful. Eggs from my best yard, $2.00 per 15. ***P. P. Forney, Hogestown, Pa.***

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my ***Golden Italians.*** They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. ***Sections, $2. per M.*** Dovetailed hives way down.

CHAS. D. DUVALL, Spencerville, Md.
Please mention this paper.

FREE! My price list of pure Italian bees and queens, and white and brown ferrets. Address
N. A. KNAPP,
Rochester, Lorain Co., O.

Colorado Cactus, Known as "*Hen and Chickens:*" red, waxy blossoms. One by mail, postpaid, 25c, or a group of 5 to 7 for $1.00, by express. Grows in any climate. Beautiful ornament. Stamps taken. Address
R. K. & J. C. FRISBEE. 172 W. Maple St., Denver, Col.

A Big Bargain in S. C. B. Leghorn cockerels at $1.00 each, from high-scoring birds. Eggs for hatching, $1.00 per 13; also eggs for hatching from nine other varieties.
AUGUST GOETZE & SON, 3822 Wood St., Wheeling, W. Va.

Golden Wyandottes.

No better birds in America. Cockerel, $5.00. Trio, $7.00. Eggs, $2.00 per setting.
E. D. Keeney, Arcade, N. Y.

Texas Cactus. Small one by mail, postpaid, 25 cts. Large one by express, 25 cts. Grows in any climate. Fine ornament. Stamps taken.
Beeville, Bee Co., Tex. **Miss Leah Atchley.**

SEED Potatoes.—Freeman (small), $1.50 for 90 lbs. Rural New-Yorker, Monroe Seedling, and American Wonder, $1.50 for 90 lbs., large, with 1 lb. earliest potato known, free. Stock true; write for bulk lots. Premium Bronze Turkeys, Barred "Rock Leghorns" (eggs *all* winter). Stock not inbred. ***S. J. Smith,*** Box 100, Padelfords, N. Y.

For Sale. 50 colonies of bees, mostly Italians and hybrids; nearly all are in Simplicity and Dovetailed hives—3 in American. A. Y. BALDWIN, De Kalb, Ill.

GOLDEN QUEENS From Texas.

My bees can not be surpassed for business, beauty, and gentleness. Safe arrival and satisfaction guaranteed. Untested queens March, April, and May—$1 each. *150* fine Tested Queens for early orders, $1.50 each. Order early. Send for price list.

J. D. GIVENS, Box 3, Lisbon, Tex.

☞In responding to this advertisement mention GLEANINGS.

LAWS' Italians surely take the *lead.* They are now in every State in the *Union,* and in several *foreign countries.* Nearly 3000 queens sold, and not a dissatisfied customer; if there is, let him speak. Queens *yellow all over.* Fine breeders always on hand; 4 and 5 band, $2.00; straight 5 band, $3.00! Untested, each, $1.00; 6 for $4.50. Satisfaction. Reference, A. I. Root.

W. H. LAWS,
Lavaca, Seb. Co., Ark.

DID YOU KNOW

That I have the LARGEST STOCK of

BEE-KEEPERS' SUPPLIES

IN NEW ENGLAND?

Consisting of Dovetailed, Simplicity, and other styles of Hives. My brand of XX white thin Foundation, and Polished one-piece Sections, are the nicest on the market.

A full line of every thing needed in the apiary at prices to suit the times.

BEES, QUEENS, and NUCLEUS COLONIES of my old reliable strain, at prices way down.

Send for 34th Annual Catalogue before you buy your stock, remembering the best is always the cheapest.

Address **W. W. CARY,**
4tf **COLRAIN, FRANKLIN CO., MASS.**

☞In responding to this advertisement mention GLEANINGS.

Bee : : : : Supplies

On the Pacific Coast.

We are headquarters on the Pacific coast for A. I. ROOT'S SUPPLIES, and can furnish them at prices to suit you. Have secured special low freight to all points for this season. Write for catalogue and special prices, stating quantity wanted. = = = = = = = = =

Posson's Seed Store.

Address, Portland, Ore. 208=210 Second St.

TREES AND PLANTS.

UPON our 250 acres of nursery we have every class of hardy Trees and Plants; Fruit, Ornamental, Nut and Flowering. **Mary** and **Henry Ward Beecher** Strawberries and **Lovett's Best** Blackberry are among the most valuable novelties. In our catalogues named below, which are the most complete, comprehensive and elaborate published by any nursery establishment in the world, all are accurately described and **offered at one-half the price of tree agents.**

LOVETT'S GUIDE TO FRUIT CULTURE tells all about fruits, their merits and defects; how to plant, prune, cultivate, etc. Richly illustrated. Several colored plates. Price 10c.

LOVETT'S MANUAL OF ORNAMENTAL TREES AND PLANTS is authoritative as well as instructive; a model of excellence in printing and illustration. Gives points and plans for ornamental planting. Price, with colored plates, 15 cents.

Established 40 years. We successfully ship to all parts of the World.

All who order either of the above and name this paper will receive an ounce of Flower Seeds *free.*

J. T. LOVETT CO. LITTLE SILVER, N.J.

In writing advertisers please mention this paper. 3 6db

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

FULL LINE OF

BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 11fdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—Rooted cuttings and plants of ***Chrysanthemums,*** such as Childs, Lincoln, Widener, Wanamaker, Spaulding, Boehmer, Waban, Canning, and many others Will send by mail prepaid for 50 cts. per dozen; if by express, will send larger plants, not prepaid. J. S. WARNER. Medina, O.

Have You seen our Catalog

"Everything for Gardeners"?

It is unlike other Catalogs. Straightforward and truthful descriptions by a practical market-gardener, of the best in **SEEDS.** Tells about growing **$2000 worth of Prize-taker Onions** on an acre, and how to grow **$3000 worth of Celery** on an acre. We sell **Vegetable Plants, Timbrell** and other leading **Strawberries** and **Small Fruits. Trees** and **Supplies** for gardeners. **Danvers Yellow Globe Onion Seed at $1 per lb. True Prize-taker, $2.25.** We send a pkt. of this and of a new **Early Tomato,** smooth, good shape and size, and the earliest, also a pkt. of new **Sensation Lettuce,** with Catalog and several useful leaflets, for only **10c.** Send now. CHRISTIAN WECKESSER, Niagara Falls, N. Y.

☞In responding to this advertisement mention GLEANINGS.

---

500 Barrels Sweet-Potato Seed.

Yellow Jersey (best variety), extra select, bbl., $3.00.
" " " second size, " $2.50.
Extra Early Carolina, similar to above, " $3.00.
Southern Queen, Red Bermuda (Yam), early, good for heavy soils, $1.50 per bushel. Order now, and secure good seed at reasonable prices. Discount on 5 and 10 barrel lots. Address
L. H. Mahan, Box 143, Terre Haute, Ind.

☞In responding to this advertisement mention GLEANINGS.

Southern Bee-keepers,

Do you know that, freight considered, we can furnish you with supplies at a less cost than any house in this country? Freight rates from New York to Jacksonville, Fla., only 35 cts. per 100 lbs. Our circular free upon application.
I. J. STRINGHAM, 105 Park Place,
23-22 tfdb ***New York City.***

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds
W. Atlee Burpee & Co., Philadelphia, Pa

IN THE FIELD. **GOLDEN QUEENS, NUCLEI.** *CIRCULAR FREE.* **J. F. Michael, German, Darke Co., Ohio.**

MUTH'S HONEY EXTRACTOR.

**Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.**

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

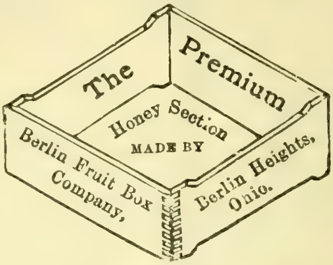
Seeds
Free!
ALSO
Freeman
Potatoes.

YOU CAN HAVE SUCCESS

in **Bee Culture** a Whole Year; 10 strong eyes of Freeman Potatoes (pure), and 10 packets of flower and vegetable seeds, for **40 CENTS,** silver. This offer is made to boom our circulation.
BURTON L. SAGE, Highwood, Conn.

☞In responding to this advertisement mention GLEANINGS.

READY TO MAIL. TESTED ITALIAN f r $1.25. Untested, $1.00. **QUEENS** Will be ready in April. Safe arrival guaranteed. Drones and Bees cheap.
J. N. COLWICK, Norse, Bosque Co., Texas.



Send for our new price list of Bee supplies and Fruit packages. A liberal discount allowed on winter orders. Address
BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.
1-10d

Automatic Comb Foundation Mills. **Made by W. C. Pelham, Maysville, - Ky.**

BBB'S!

If you keep ***BEES,*** subscribe for the **Progressive Bee-keeper,** a journal devoted to Bees, Honey, and kindred industries. ***50 cts. per year.*** Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address
LEAHY MFG. CO., HIGGINSVILLE, MO.

☞In responding to this advertisement mention GLEANINGS.

I will send post-paid for $1.00, **14 Beautiful Carnation Plants.** For $2.00 I will send **15 Carnation and 15 Rose Plants,** —30 in all—no two alike. ***S. LENTON, Piru City, Ventura Co., Cal.***

APPLES, Ben Davis, Ark. Black, Mammoth Black Twigs, all varieties. Whole root only. Premium World's Fair. Trees, 10c each. On orders of 100 I pay the freight. W. H. LAWS, Lavaca, Ark.
Please mention this paper. 4 7b

GEO. W. HUFSTEDLER,

Breeder of 5-Banded Italian Bees and Queens.
Untested, 75 cts. Tested, $1.00 each.
CLARKSVILLE, RED RIVER CO., TEXAS.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,
12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

Queens? Yes, either 3 or 5 banded bees; Queens and supplies. Pure-bred Poultry cheap.
Catalogue free. ***CHAS. H. THIES, Steeleville, Ill.***

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis.

$5.50 For 3, or $10.00 for 6, Finest Brown Leghorns, or Plymouth Rocks. Other varieties. Circular free. Address GEER BROS., St. Marys, Mo., or H. B. GEER, Nashville, Tenn. 5tfdb

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS is getting better and better; guid luck tilt. is the wish of your subscriber.
New Craighall, Scotland, Jan. 5. AND'W BUCHAN.

I wish to add my vote of thanks for the improvement in GLEANINGS since Jan. 1.
Millard, Neb., Feb. 8. MRS. A. L. HALLENBECK.

I received the goods ordered of you a short time ago. They are the finest I ever saw. The sawed wood separators are very nice. WILTON TAYLOR.
Onondaga, Mich., Feb. 2.

I like GLEANINGS very much, and would not do without it. I have 20 stands of bees in cellar, in good condition thus far R. WOODWARD.
Montfort, Wis., Feb. 6.

I have seen some honey in this market stored in your goods, which surpasses any thing I had known before. I am somewhat interested in bees, and should like a catalog or price list of your hives and other fixtures. SOLON C. SMITH.
Jackson, Ohio, Oct. 9.

I am well pleased with GLEANINGS, and think every bee-keeper should take it. There is lots to earn. I always read "On the Wheel," but think I would rather be where I could help eat some of that celery than to read about it, as the grasshoppers ate our celery off close to the ground.
South Cayuga, Ont., Nov. 28. O. FATHERS, JR.

THE COWAN EXTRACTOR A BEAUTY.

My supplies have come to hand, all in good order. The Cowan extractor is a beauty, and I consider it very cheap at the price. The shoe-repairing outfit s good. It will save discomfort and expense, and hould be in every household. Please accept my hanks for GLEANINGS for 1894.
WM. MUTH-RASMUSSEN.
Independence, Cal., Feb. 14.

This is an out-of-the-way place, and cotton is our only money crop. You can figure it out, and see hat there is not a good living in it. I had 700 lbs. of extracted honey last year. The most I could get in New Orleans was 4½ cts. per lb., with freight, commission, and drayage deducted. So we used the most of it ourselves, thereby saving 40 cts. a gallon or syrup, and better health, I believe. Your writings and poor health together have caused me to quit smoking (the only way I used tobacco), and I find my health improved by doing so.
Clio, La., Feb. 12. JOSEPH RYAN.

The goods ordered of you Jan. 18th, and shipped an. 25th, were received Jan. 30th in good order. Freight charges were moderate. I have unpacked most of the goods, and have not found any thing missing as yet. I am pleased with the change you made in the covers. I like the plan of having them double. I use painted muslin on my flat covers, supported about ½ inch above by strips of wood running crosswise of the cover, and extending about n inch on either side, giving a chance for the air to circulate under the muslin. S. FARRINGTON.
Corunna, Ind., Feb. 3.

OUR FOOT-WARMER.

My foot-stove has now been put to the test three imes, and the first Sunday I used it (I have ministered to a country congregation about seven miles out from here for over thirty years) I put in two sticks of fuel, and, though the weather was exceedingly cold I rode out in comfort with warm feet, nd I left the stove under the robe while the services were in progress; and on my return the fire was out nd a good big hole had been burned in the robe. I concluded it was my fault in giving too much air; o the next time I shut off the most of the air, and, being a warm day, one stick of fuel kept me warm until my return at night. Last Sunday I did the ame, and came home with warm feet, and very comfortable otherwise. I find that one stick of fuel, n ordinary winter weather, is all I need, and that, with a very moderate draft, it will burn about six hours, and keep one comfortably warm; so you can set me down as a convert to the foot-stove as admirably adapted to the wants of clergymen with country parishes which they are obliged to visit by private conveyance. G. A. ADAMS.
Perrysburg, O., Jan. 31.

THE TOMATO-BOOK; CANNING TOMATOES, ETC.

We have been engaged quite extensively in growing tomatoes for local and other markets, and think your book, "Tomato Culture," is by far the best that has ever been introduced. Your information in the book has been very valuable to me; but I have one fault to find—you *stop* too soon. Nearly every year there is a time when the markets are full, and prices too low for us to ship for a few days or weeks, and our fruit lies on the ground, and rots. Will you kindly write me where I can purchase a book, or get instructions for canning, or making ketchup from tomatoes?

Now you have told us how to raise tomatoes, I think you ought to tell us how to take care of them. Even a thousand bushels that go to waste nearly every year would, if properly canned, make a profit of itself. C. A. TURNER.
Macon, Ill., Jan 23.

[In our issue of June 1, last year, you will find an article covering the question you ask, friend T.]

FROM PRESIDENT ABBOTT.

My Dear Mr. Root:—I want to congratulate you on the many good points in your reply to Mr. Farrington's letter. You have struck the keynote of success, in my opinion. You have also stated clearly the reason why a large number of people are out of employment. There are too many in this country working only for the *wages* they receive, with no thought of doing the *very best they know how* for the one who employs them. Then there seems to be so little *know how* in the world. We often say people are not to blame for what they do not know; but they are all the same when they *could* know just as well as not. One man can not know every thing; but many of them could know more than they do if they would only think so and make the effort. I mean, they *could* know more about how to do things as they should be done. If this little sermon of yours could be preached from every pulpit in the country, or put in pamphlet form and spread broadcast over the land, it could not fail to do a deal of good. I am sure it would be more profitable reading than the sentimental, paternal, socialistic trash that fills the columns of many so-called "reform" papers.
St. Joseph, Mo., Feb. 20. EMERSON T. ABBOTT.

TERRY'S NEW BOOK, "OUR FARM," ETC.

We clip the following from the *Rural New-Yorker:*

> OUR FARM: We regard this book as the most interesting and instructive volume that has ever been written about American farm life. In fact there is nothing just like it in the English language. It is a story, an agricultural treatise, and an argument for a higher and better farming all in one. Those who have ever read Mr. Terry's articles know that he writes with a breezy earnestness that makes "easy reading," and carries conviction along with it. They will find the thought and argument in the book high-grade, soluble, and easy to digest and assimilate. Mr Terry has long been famous for his methods of growing clover, wheat and potatoes. He has no trade secrets—the whole thing is described and laid bare for us in this volume. Tile drainage and the use of muck, skillful saving of manures—all the machinery of nature that man can oil and overhaul—are well treated in this book, which is, we repeat, the most interesting farm record we have ever read

Now, I believe every word the *Rural* says; but I am a little surprised to see they give such extravagant praise to a book that does not agree with them at all in the use of chemical fertilizers. In fact, I sometimes feel troubled to see the *Rural*, week after week, give such tremendous puffs to these things, and perhaps I might confess that I also feel troubled to see the results of Terry's experiments, year after year, indicate so clearly that every chemical fertilizer he undertakes to use does just no good at all. I really wish we could put Terry on some sort of soil where fertilizers *would* avail. But I am afraid that, even then, he would get such tremendous crops of clover that the fertilizer would be thrown into the shade or into nothingness. And then the thing that troubles me again is, he would not use any sort of fertilizer to get the clover started. Now, T. B. Terry is certainly a great teacher; and the *Rural New-Yorker* is also another great teacher. How in the world can it be that their teachings, or, rather, their experiences, should differ so *tremendously!*

Revised Price List of Garden Seeds for March 15.

Please notice that any or all seeds mentioned below are sold in five-cent packages, postpaid by mail, For 10 papers ordered at one time, 40 cts.; 100 papers, $3.50. Of course, scarce and high-priced seed will necessitate making only a very small amount of seed in a package; but by far the greater part of them contain a full half-ounce of good fresh seeds. By comparing these packages with those you get of many of the seedsmen you will notice the liberal amounts we furnish for only 5 cts. It is true, we do not give presents or cash prizes; but we believe the most intelligent people of the present day would prefer to have their money's worth of what they ordered, rather than to compete for a prize. The five-cent packages are sent postpaid; but the price of all other seeds does not include postage; therefore, when you order seed by the ounce or pound, allow postage thus: 9 cts. per lb.; 5 cts. per ½ lb., or 1 ct. per oz. Peas and beans by the pint and quart must also have 8 cts. per pint or 15 cts. per quart; for corn, add 12 cts. per quart for postage. Postage to Canada is double the above rates. One-fourth ounce, pound, or peck, will be sold at ounce, pound, or peck rates unless otherwise specified. In the enumeration below, no description of the seeds is given, as you may notice. Our complete catalog, with full description, will be mailed on application if you have not already received it.

ASPARAGUS.

Asparagus, Palmetto. Oz. 5c; lb. 60c.

Asparagus Roots. 1 year old. Palmetto, 10 for 10c; 50c per 100; $4.00 per 1000. By mail, add 5c for 10, or 25c per 100.

BUSH BEANS.

Henderson's New Bush Lima Bean. ½ pt. 10c; qt., 35c; peck, $2.25; bushel, $8.50.

Kumerle's Bush Lima. ½ pint, 25c; qt 75c.

Burpee's Bush Lima. ½ pint, 20c; qt. 50c.

Kidney Wax. Pt. 15; pk. $1.50.

White Kidney, Large. Pt. 10c; pk. $1.25. Bu., $4.50.

York State Marrow. The best field bean. Pint, 10c; peck, $1.00; bush. $3 50.

POLE BEANS.

Extra-Early Lima Beans. These are fully equal to the old lima beans, and are fully as productive, and from ten days to two weeks earlier. We consider it an acquisition. Price, ½ pt. 10c; qt 30c; peck $2.00.

King of the Garden Lima. ½ pt. 10c; qt. 30c; peck. $2 00.

All of our beans will be furnished in 5-cent packages; but where they are to go by mail, postpaid, of course the above packages will have to be quite small. If wanted by mail, add 8c per pt. or 15c per qt. for postage.

BEETS.

Eclipse. Oz. 5c; lb. 40c; 5 lbs. $1.50.

Lane's Improved Sugar. Oz. 5c; lb. 25c; 5 lbs. $1.00

Long Red Mangel. Oz. 5c; lb. 25c; 5 lbs. $1.00.

CABBAGE.

Select, Very Early Jersey Wakefield. *Stock seed.* Oz. 20c; lb. $2.50.

Henderson's Early Summer. Oz. 20c; lb. $2 25.

Fottler's Brunswick. Oz. 20c; lb. $2.00.

Excelsior Flat Dutch. Oz. 15c; lb. $1.50.

Perfection Drumhead Savoy. Oz. 15c; lb. $2.00.

Large Red Drumhead. Oz. 15c; lb. $2.00.

CARROTS.

Early French Forcing. Oz. 5c; lb. 60c.

Orange Danvers, Half-Long. Oz. 5c; lb. 60c.

CAULIFLOWER.

Henderson's Early Snowball. Raised by H. A. March. ⅛ oz. 25c; ¼ oz. 40c; oz. $1.50.

CELERY.

Henderson's White Plume. Oz., 20.; lb., $2.50.

Golden Self-Blanching Celery. Oz., 20c; lb., $2.50.

New Rose. Oz. 20c; lb. $2.25.

Dwarf Golden Heart. Oz. 15c; lb. $1.75.

CORN (FOR TABLE USE).

Corn (except Ford's Early and Mammoth) we sell at 5c per half-pint package; but at this price purchasers must pay the postage, which is 3c for each half-pint. If wanted in larger quantities the price will be 15c per quart, 75c per peck, or $2.75 per bushel.

Cory's Extra Early.

Ford's Early Sweet. ½ pt. 8c; qt. 20c; pk. $1.15; bushel, $4.50.

Late Mammoth Sugar. ½ pt. 10c; crop short.

Country Gentleman, or **Improved Shoepeg.**

CORN SALAD.

Oz. 5c; lb. 75c.

CRESS, OR PEPPER GRASS.

Extra Curled. Oz 8c; lb. 60c.

CUCUMBER.

Early Frame. Oz. 5c; lb. 50c.

Improved Early White Spine, or **Arlington.** Oz. 10c; lb. 60c.

Green Prolific, or Boston Pickle. Oz. 5c; lb. 50.

LETTUCE.

Grand Rapids Lettuce. Oz. 15c; pound, $1.75; 5 lbs. $7.50. *This seed is from the originator, Eugene Davis.*

Boston Market (or White-seeded Tennis-ball). Oz., 10c; lb., $1.00.

Henderson's New York. Oz. 10c; lb. $1.00.

MELONS, MUSK.

Casaba, or Persian Muskmelon. Oz. 5 cts.; lb. 60c.

Extra Early Citron. Oz. 5c; lb. 60 c.

Banana. Oz. 5c; lb. 60c.

Emerald Gem. Oz. 10c; lb. 75c.

Miller's Cream, or Osage. Oz. 10c; lb. 75c.

MELONS, WATER.

Phinney's Early. Oz. 5c; lb. 60c.

Landreth's Boss. Oz. 5c; lb. 60.

MUSHROOM SPAWN.

Agaricus Campestris. Single lb., 15 cts.; 5 or more lbs., 12 cts. per lb.; 10 lbs. or more, 10 cts. Directions for raising mushrooms sent with each order.

ONION.

Yellow Globe Danvers. Oz. 10c; lb. $1.00; 5 lbs., 90c per lb.

Large Red Wethersfield. Same prices as above.

Silverskin, or White Portugal. Oz. 25c; lb. $3.00.

Prize Taker. Oz 20c; lb. $2 25.

White Victoria. Oz. 20c; lb. $2.50.

American (Extra Early) **Pearl.** Oz. 25c; ½-lb. $1.90; lb. $3.50.

Extra Early Red. Oz., 15 cts.; ¼ lb., 35 cts.; per lb., $1.00.

ONION-SETS.

By mail 10 cents per quart extra.

Yellow Danvers. Qt. 20c; peck, $1.50; bush. $5.

Large size Yellow Danvers, one-half above prices.

These are often used for pickles, but are also to be used for onion sets; but the seed-stalks must be pulled off if they appear, if you wish them to make onions.

Silverskin. Qt. 30c; peck, $2.00; bush. $6.50.

Extra Early American Pearl. Qt. 35c; pk. $2.25

Winter, or Egyptian Onion Sets. Prices, 5c per qt., or 35c per peck; $1.00 per bush.

White Multiplier. Price 10c per pint; 15c per qt; $1.00 per peck, or $3.50 per bushel.

PARSNIP.

Improved Guernsey. Oz. 5c; lb. 25c; 10 lbs., $2.00.

PARSLEY.

Fine Curled or Double. Oz. 5c; lb. 50c.

PEAS.

Alaska. ½ pt., 5c; peck, $1.00; bush., $3.75.

American Wonder. ½ pt. 8c; pk. $1.75; bu. 6.50

Premium Gem. ½ pt. 5c; peck, $1 00.
Much like Am. Wonder, but taller and more productive.

Stratagem. ½ pt. 8c; qt. 25c; pk. $1.75; bu. $6.

Champion of England. Pint, 10c; pk. $1.00: bushel, $3.50.

Peas by mail will be at same rate as beans for postage.

PEPPERS.

Sweet Spanish. ¼ oz. 10c.; oz. 25c.

Bullnose. ¼ oz. 10c; oz. 25c.

Cayenne. ¼ oz. 10c; oz. 25c.

POTATOES.

Monroe Seedling.

Lee's Favorite.

Rural New Yorker.

1 lb., by mail. 18c postpaid; 3 lbs., 40c; by freight or express with other goods, 1 lb., 5c; 1 pk., 35c; 1 bush., 1.00; per barrel of 11 pecks, $2 50

Early Ohio.

Farly Puritan.

Prices of any of the above: 1 lb., by mail, 25 cts.; 3 lbs , 60 cts. 1 lb., by express or freight, 10 cts.; 1 peck, by express or freight, 50 cts.; 1 bushel, $1 75 Barrel, containing 11 pecks, $4 00. If potatoes are ordered in the winter we will do our best to protect them from frost, but the purchaser must take all risk. At these prices we make no charge for barrels or packages, but deliver F. O B. cars here in Medina.

Freeman.

LARGE AND MEDIUM SIZE.

One lb., by mail, 30c; 3 lbs., 75c; 1 lb., by freight or express with other goods, 15; 1 pk., by freight or express with other goods, 75 c; 1 bushel, 2 00; 1 bbl. (11 pecks), 5.00. SECOND SIZE Freemans, while they last, same price as Early Ohio.

Potato-eyes. Any of the above varieties by mail postpaid, 15c for 10; or 80c per 100.

RHUBARB.

Myatt's Victoria. Oz., 10c; lb., $1.00. Roots, 10c each; 50c for 10; $3.50 per 100. If wanted by mail, add 5c each for postage.

PUMPKIN.

Early Sugar. Oz 5c; lb. 50c.

RADISHES.

Early Scarlet Globe. Pkt. 5c; oz. 10c; lb 60c

Wood's Early Frame. Oz. 10c; lb. 75c.

Beckert's Chartier. Oz. 5c.: lb. 40c.

Chinese Rose Winter. Oz. 5c; lb. 40c.

SALSIFY, OR OYSTER PLANT.

New Mammoth. From Sandwich Islands. Oz. 10c ; lb., $1.00.

SPINACH.

Bloomsdale Extra Curled. Oz 5c; lb. 25c. 5 lbs. $1.00.

SQUASH.

SUMMER.

Giant Summer Crookneck. Oz. 10c; lb. 50c.

WINTER.

Hubbard. Oz. 10c; lb. 60c.

TOMATO.

Golden Queen. Pkt., 5c; oz., 20c; lb., $2.50.

Ignotum Tomato. ¼ oz. 10c; oz. 25c; lb. $2 50.

Livingston's Beauty. Oz. 20c; lb. $2.00.

Dwarf Champion. oz. 20c; lb. $2.50.

Livingston's New Stone Tomato. Oz 25c; lb. $3.00. A very fine large tomato for main crop.

Early Ruby. Per oz., 20 cts.; lb., $3.00.

Buckeye State. Per ½ oz., 30 cts.; oz., 50 cts.; ¼ lb., $1.60; lb., $5.25.

Pear-Shaped Tomatoes. Oz. 20c; lb. $2.50.

TURNIP.

Extra-Early Turnips.

Purple-top White-globe. Oz. 5c; lb. 40c; 5 lbs. $1.50.

Yellow Aberdeen. Oz. 5c; lb. 40c.

Breadstone. Oz. 10c; lb. 60c.

White Egg. Oz 5c; lb. 40c.

A. I. ROOT, Medina, Ohio.

SPECIAL
FROM
BUSINESS
NOTICES
MANAGER

Note the reduction in price of all potatoes except the Freemans.

CARLOAD ORDERS.

As we go to press we are loading a car of goods for export to Australia. This goes in several consignments to different firms. About two weeks ago we sent a half-car order in one shipment. We are also shipping a carload of hives, sections, smokers, and other goods, to Walter S. Pouder of Indianapolis, where many of the supplies we make may be had at our prices.

THREE-EIGHTHS-INCH PATTERN-SLATS.

If any of our readers use or prefer slotted section-holder bottoms ⅜ inch thick we can supply you from stock at the same price as our regular size ¼ inch thick, 60c per 100, or 500 for $2.50. These are 1⅞ inches wide, 18 inches long, slotted for four 4¼-in. sections. Price, with ½-inch end-blocks, double above rate. Remember, these can not be used in our regular Dov. super without destroying the bee-space above.

NEW GLEANINGS BINDER.

We have for several years been using in our office a binder which came from England, which we have liked very much better than the Barrett binders we have been selling. We have tried for over two years to find where the same kind of binder could be had in this country. We recently found what we wanted, in Boston, and now have 100 of them in stock. We expect to give a cut of it in next issue, showing how it works. They cost a little more than the old kind. The price will be 65c each for all cloth, or 75c for cloth with leather corners and back. All are nicely lettered in gold on the back, and on the front cover "GLEANINGS IN BEE CULTURE." Postage extra, 17c each. There are 24 steel strips threaded on to a wire at each end. The journals are held in the binder by one of these strips passing through the center. No holes are punched, and it is the work of a moment to remove and replace any one or all of the journals when desired.

HONEY MARKET.

Our stock of choice comb honey was all shipped soon after our last issue was mailed. We expect to have a further supply soon, but the price will be 15c per lb. for choice in 100 lb. lots. For smaller lots, 16c. We have about 300 lbs. of fair honey, which cost us 14c last fall, but which we offer for 13c now; also 200 lbs. of buckwheat at 11c per lb. All this is in 1-lb. sections. We have 3 cases of fancy white, 1½-lb. sections, which we will sell at 14c per lb. For extracted honey we quote the same prices as in the last issue, as follows:

Choice clover and basswood extracted, in 200-lb. kegs or barrels, at 7½c; in 60-lb. cans, 2 in a case, 8c. Choice white-sage honey, in 60-lb. cans, 2 in a case for 7½c.

GALVANIZED WIRE CLOTH.

We are now using in our extractors a wire cloth with a pure zinc finish, galvanized after being woven, four meshes to the inch, and No. 22 wire. It is stronger than the tinned cloth we have used for years, and has larger meshes. The greater strength is due to the fact that the wires are joined, where they cross, by the coating. There is nothing in this coating that is detrimental, as the same kind of cloth is largely used for fruit-drying, where the acid of the fruit is left for a long time in contact with the wire, yet the manufacturer of the cloth agreed to eat at one time all the poison there might be in a hundred barrels of such fruit. He thus proved his confidence in the harmlessness of the coating, which is of pure zinc, and different from the coating generally used. Besides this 4 mesh, we have also 6 mesh to the inch in stock. We can furnish it in cut pieces at 6c per square foot, or full rolls, 100 feet long, at 4½c per sq. foot. Our stock is 30 and 36 inches wide. We can ship from New York or Chicago, any width desired, at above figures.

MAPLE SUGAR AND SYRUP.

The delicious sweets from the sugar maple are being gathered in this vicinity. Not much has yet been brought in, but we expect very soon to have enough to supply all orders. We have orders in already for about a ton of sugar, and have shipped two lots of syrup. Our prices on sugar will be the same as in former years—10c per lb. for best grade; 9c for No. 2, and 8c for No. 3; ½c less in 50-lb. lots, or 1c less in 300-lb. lots. We can offer syrup a little lower this year.

Choice syrup in one-gallon cans will be $1.00 per gallon; in 10-gallon lots or more, 90c. Those desiring to buy in quantities will do well to write us. The weather is such that the crop here promises to be short.

STICKEMFAST MUCILAGE.

We have at last got a preparation that will stick labels to tin, and keep them stuck indefinitely. Most preparations heretofore would seem to stick them all right, but after a little they would pop off. There is one great drawback to this. It comes in dry or granular form, and must be prepared for every two or three days' use, as it will not keep longer than three or four days and do its work. If prepared and applied fresh, according to directions, it will stick labels securely to tin or wood, and hold them. When used to stick two papers together they do not become hard, and crack, as with other mucilage, but remain pliable.

An ounce of the dry powder makes a pint of mucilage, which will stick a good many labels. Price of Stickemfast, including full directions for preparation, 1 oz., 15 cts.; 2 oz., 25 cts.; 1 lb., $1.25. Sent postpaid at these prices.

LATHYRIS SILVESTRIS, WAGNERI.

Dr. Miller, I very humbly beg pardon. I did see that straw, but *Lathyris silvestris* did not mean anything to me just then; but now it wakes me up quicker than greenhouse, strawberry, or any thing else. But what did you put that last part on for—*Wagneri?* Is not *Lathyris silvestris* bad enough without more Latin? Never mind. We have got a little bag of seed, and it is going off some in five-cent packages. A. I. R.

EXTRA EARLY AMERICAN PEARL ONIONS.

At this date, March 9, the sets planted last September have wintered even better than ever before. Our severe freezing weather, even without snow, does not seem to have injured them at all, neither are any of them thrown out by the frost. The plot of ground where they were planted was very heavily manured, and after the fall rains they sent their roots down to such a depth that the frost seems to have had no effect on them. They are on our creek-bottom ground; and although a part of the piece was under water once or twice it seemed to have sustained no injury. I do not quite understand why they do so well in our locality and do not endure the winters in other localities.

OUR TIMBRELL STRAWBERRY-PLANTS.

You know we succeeded in saving scarcely half a dozen plants last year from the plants we purchased. There were, perhaps, three good ones; one more that might be called half a plant, and another that barely made a "live." We did our best in increasing them last season, and succeeded in getting what are now 322 strong vigorous plants. Twenty of these are in the greenhouse, where the flower-buds have been picked off day by day for perhaps a couple of weeks past, and we are rejoiced to find that one plant has started a runner nearly an inch long. By pulling off the flower-stems you can get them to put out runners under glass. We do not propose to offer any plants for sale until we get good strong sets from the runners—say some time in July. Now, then, how many plants can we make of our 322 before snow comes again?

This is beautiful March weather. As we go to press this has been the most sunshiny March I think I ever saw in my life. The roads are now hard enough so I propose to soon start out on a wheeling-trip. We have planted largely of peas; some beets, radish, cabbage seed, and other hardy things, outside. The bees are bringing pollen from the soft maples; and if we do not get some blizzards, the outlook is a grand one; and even if the blizzards do come, we have had good roads and dry weather so that general gardening and farmwork ought to be well in hand. A. I. R.

SPECIAL SECTIONS AT SPECIAL PRICES.

Although we have sold quite a number of these, yet we find that we still have in stock the following list of No. 1 white sections, such as we have sold fo best until this season, and which are as good as o better than the best made by all but possibly two o three leading manufacturers. We offer these, whil they last, at $2.50 per 1000; 2000 for $4.50; 3000 fo $6.50, or 5000 for $10.00. At the rate they have bee going they are not likely to last long. When thes are gone we shall have none but our extra polishe sections to offer, and the No. 2 grade selected fro them in manufacturing. The sizes on hand her are as follows:

23,000 4¼x4¼x$1\frac{15}{16}$, open four sides.
50,000 " " $1\frac{13}{16}$, open top.
4,000 " " $1\frac{13}{16}$, closed top.
6,500 " " $1\frac{13}{16}$, open four sides.
14,000 " " 1¾, open top.
9,000 " " " closed top.
32,000 " " 7 to foot, open top.
6,000 " " 7 to foot, closed top.
4,000 " " 7 to foot, open four sides.
28,000 " " 1½, open top.
12,000 " " " open four sides.

Besides the above we have at Bankers, Hillsdal Co., Mich., the following, which are offered at th same prices:

33,000 4¼x4¼x$1\frac{15}{16}$, open top.
15,000 " " 1⅞, open top.
40,000 " " 1¾ and 7 to foot, open top.

All No. 1 white, made two years ago, and choic sections. Send orders for these to us here at Medin

In our stock at St. Paul, Minn., with H. G. Ackli 1024 Miss. St., we have about the following quant ties of No. 1 white sections, which we offer at th same prices. Send orders to above address for thes or any other items needed in the line of bee-keeper supplies. There is a full stock ready for promp shipment, but none of our new sections are in stoc there yet.

18,000 4¼x4¼x7 to foot, open top.
30,000 " " 1⅞, open top.
8,000 " " $1\frac{15}{16}$, open top.

Also of No. 1 cream, at same price as on stoc here named below, the following:

9,000 4¼x4¼x1⅞, open top.
10,000 " " $1\frac{15}{16}$, open top.

Of No. 1 cream and seconds, from our new extr polished sections, which are about equal in valu we have in stock here the following, which we offe at $2.00 per 1000; 3000 for $5.70; 5000 for $9.00.

5,000 4¼x4¼x2 open top.
6,000 " " 2 open four sides.
37,000 " " $1\frac{15}{16}$, open top.
7,000 " " 1⅞, open top.
12,000 " " 7 to foot, open top.

Of other sizes of No. 1 white sections we have th following at the price annexed:

1500 5¼x5¼x1⅞, closed top, at $3 00 per 1000.
2500 " " $1\frac{15}{16}$, open " " 3 00 "
2500 5 x6 x1⅞, " " " 3 00 "
700 5½x5½x1⅞, " " " 2 00 for lot.
9000 6¼x5¼x2 " " " 3 00 per 1000.
1500 " " 1⅞, " " " 3 00 "
4500 " " 1¾, " " " 3 00 "
6500 5¼x6¼x$1\frac{15}{16}$, " " " 3 00 "
2000 " " " closed top, " 3 00 "

The above are all choice fresh sections, and a ba gain at the price. We have, besides, a lot of odd and ends too numerous to list here, of which w shall be pleased to mail a list of sizes, quantities and prices at which we will close out, to any on who is interested, and sends us a request for it You may find in it something you can use at triflin cost.

BEES FOR SALE.

I will sell hybrid or black colonies of bees, in lots of (20) twenty at ($3.00) three dollars each, to be shipped about the 10th of May. Each colony will contain 8 combs with brood and honey. Address

T. E. McLEAN, THOMPSON'S STATION, WILLIAMSON CO., TENN.

Eggs for Hatching, From choice stock of S. C. B. Leghorns, at $1.00 for 15 eggs.

LEININGER BROS., F. Jennings, O.

Do Not Order

Until you have written us for prices on the *"Boss" One-Piece Section.*

PATENTED.
JUNE 28 1881.

Also D. T. Hives, Shipping-crates, and other supplies.

We have just completed a large addition to our factory, which doubles our floor-room, and therefore we are in better shape than ever to fill orders on short notice. Write for price list.

J. FORNCROOK & CO.,

Watertown, Wis., Jan. 1, 1894. 1-3-5tfd

WHY SEND WAY Down South For Queens? My bee-keeping friends, Northern Italian queens wintered outdoors are more hardy, energetic, and prolific in their season of bee-rearing. Read and think before ordering. Send for price list, and order early. Strawberry-plants of the latest variety cheap.

MRS. OLIVER COLE, Sherburne, Chenango Co., N.Y.
Chenango Valley Apiary. eitf

Root's Goods at Root's Prices.

We have the best shipping-facilities in the Northwest. We can save time and freight by shipping direct on some 40 or more railroads, without change of cars, which saves handling, and goods are much less liable to be broken or smashed.

Root's 1893 No. 1 white sections, 4¼x4¼x7 to foot, $1\frac{7}{8}$, and $1\frac{15}{16}$, at $2.50 per 1000. No. 1 cream, 4¼x¼x$1\frac{7}{8}$ and $1\frac{15}{16}$, $2.00 per 1000.

Write for price list and what you want.

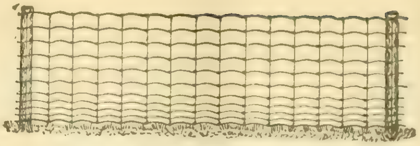
H. G. Acklin, 1024 Mississippi St.,
St. Paul, Minn.

Northwestern Agent for A. I. Root's Bee-keepers' Supplies.

SPRAY YOUR FRUIT TREES & VINES

Stahl's Double Acting Excelsior Spraying Outfits prevent Leaf Blight & Wormy Fruit. Insures a heavy yield of all Fruit and Vegetable crops. Thousands in use. Send 6 cts. for catalogue and full treatise on spraying. *Circulars free.*

WM. STAHL, Quincy, Ill.



FARM FENCE FILOSOFY.

The cross wires of a smooth wire fence may be likened unto the stitches in a garment. If the thread be strong, the stitches close, that garment shall **hold,** even as "The Page" holdeth the little pigs.

But beware of the garment held together by "basting threads"; strong cloth and big thread availeth not. The wearer shall surely come to grief.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

BEES QUEENS Smokers, Sections, Comb Foundation, And all Apiarian Supplies cheap. Send for FREE Catalogue. **E. T. FLANAGAN, Belleville, Ill.**

Gray Carniolan Queens and Bees,

Bred the coming season by the undersigned. As these bees are a hardy race, so as to winter with but small loss, they are well adapted to our cold climate; and as they breed up better than any other race of bees known, they become of much importance to both Northern and Southern bee-keepers. Send for circular to *JOHN ANDREWS,*
Pattens Mills, Wash. Co., N. Y.

BEE SUPPLIES RETAIL AND WHOLESALE

Every thing used in the *Apiary.* Greatest variety and *largest* stock in the West. New catalog, 70 illustrated pages, free.

Discounts to Dealers.

E. KRETCHMER, Red Oak, Ia.

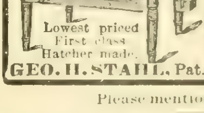
☞In responding to this advertisement mention GLEANINGS.

World's Fair Medal

Awarded my *Foundation.* Send for *free samples.* Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free* Illustrated Price List of every thing needed in the apiary.

Bell Branch, Mich. **M. H. Hunt.**

HATCH CHICKENS BY STEAM
WITH THE IMPROVED
EXCELSIOR INCUBATOR.



Lowest priced First class Hatcher made.

Thousands in Successful Operation. *SIMPLE, PERFECT, and SELF-REGULATING.* **Guaranteed to hatch a larger percentage of** fertile eggs, at less cost, than any other Incubator. Send 6c. for Illus. Catalog. Circulars Free.

GEO. H. STAHL, Pat. & Sole Mfr., Quincy, Ill.

Please mention GLEANINGS. 21 8db

Cash for Beeswax!

Will pay 23c per lb. cash, or 26c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 28c per lb., or 30c for *best selected wax.*

Unless you put your name *on the box,* and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio.

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Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Italian queens or offers for B. P. Rocks and Pekin Duck eggs, raspberry and strawberry plants. **WM. HEYWOOD,**
Stafford, Genesee Co , N. Y.

WANTED.—A foot-power or combination circular saw, *must be in good condition*, and cheap. Would also buy some power machinery for making bee-hives, etc. **CHAS. M. ORR,**
Box No. 1, Dallas, Texas.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange blackberry-sets, red and black raspberry-plants, $8 per 1000, for beeswax.
A. P. LAWRENCE, Hickory Corners, Barry Co., Mich.

WANTED.—A brisk, temperate young man that would like to learn about bees and fruit. Beekeeping and fruit-growing go well together.
S. I. FREEBORN, Richland Center, Wis.

WANTED.—Situation in apiary; 15 years' experience; capable of taking charge of apiary. Address **R. T. SMITH**, 4804 St. Lawrence Ave., Chicago.

WANTED.—To buy bees; Texas or Colorado preferred. **E. SANDFORD**, Nokomis, Ill.

WANTED.—To exchange nursery stock for thoroughbred poultry eggs; also bee-keepers' supplies. **R. A. LEWIS**, Cherokee, Ia.

WANTED.—To exchange 6-in. Root foundation-mill, for wax or honey. **I. J. STRINGHAM,**
105 Park Place, New York.

WANTED.—To exchange 5 or 10 acre lot in Florida (Putnam Co.), for bees and supplies to be delivered at Keuka, Fla. Exchange to be made in fall of 1894. Write to **DR. BALL**, 136 Main St., Norwich, Ct.

WANTED.—To exchange incubators, brooders, and eggs for hatching, of 14 varieties thoroughbred fowls, for first-class thoroughbred poultry.
Address **ED. W. COLE**, Kenton, O.

WANTED.—150 colonies of bees (L. frame) in exchange for Eureka mowers, Spring-tooth harrows, Steel-lever harrows, Buckeye binders, etc. This machinery is all new and in good shape.
EZRA BAER, Dixon, Lee Co., Ill.

WANTED.—To exchange for offers, three or four hundred worker and extracting combs, L. frames. **R. ROBINSON**, Laclede, Fayette Co., Ill.

WANTED.—To exchange Planet Jr. cultivator (new) and brood foundation for extracted honey. **J. T. VAN PETTEN**, Linn, Wash. Co., Kas.

WANTED.—Young man with knowledge of job printing and queen-rearing, and who desires to locate in California where he could combine both occupations, might find it to his interest to correspond with **W. A. PRYAL**, North Temescal, Cal.

WANTED.—To exchange ten strong colonies of bees in Root's Dovetailed hives, for offers
Write **F. H. JEWHURST**, Richmond, Va.

WANTED.—To exchange for offers, 25 colonies of Italian bees in Simp. hives; also a few new hives and fixtures, **CHAS. DALLETT,**
3202 Chestnut St., Philadelphia, Pa.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange an incubator for bee supplies. **C. H. ALTON**, Cobb, Iowa Co., Wis.

WANTED.—To exchange bees for safety bicycle in good condition, or offers.
R. J. FOX, 96 Pond St., Natick, Mass.

WANTED.—To exchange bees for incubator. One of the standard machines preferred.
W. D. SOPER, Box 1473, Jackson, Mich.

WANTED.—To exchange Root's goods, to be shipped from here or factory, for white comb honey (crop of '94 preferred) in quantity lots. See ad. in another column. **B. WALKER**, Evart, Mich.

WANTED.—To exchange 200-egg incubator and brooder, perfect working condition; cost $40; four fox-hound pups, six months old, best breed in America, for gold watch or safety bicycle.
GEO. K. SCOTT, Turtle Lake, Barron Co., Wis.

WANTED.—To exchange L. hives, brood-frames, section-cases (finest in the market), sections, comb-foundation machine, groceries, for bees in April and May. Address **E. PETERMAN,**
Sheboygan, Wis.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge. After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

FOR SALE.—40 mixed queens, some very good Italian. First come, best served. Delivery not later than May 1st; 25c each. **DR. J. W. CRENSHAW,**
Verseilles, Ky.

40 black, hybrid, and mismated queens for sale at 30c each, or $2.75 for ten. **H. L. WEEMS,**
Hanford, Cal.

BEE-KEEPERS' Supplies of all kinds cheap for cash.
NOVELTY CO., ROCK FALLS, ILL.

LAWS' Italians surely take the *lead*. They are now in every State in the *Union*, and in several *foreign countries*. Nearly 3000 queens sold, and not a dissatisfied customer; if there is, let him speak. Queens *yellow all over*. Fine breeders always on hand; 4 and 5 band, $2.00; straight 5 band, $3.00! Untested, each, $1.00; 6 for $4.50. Satisfaction. Reference, A. I Root. ***W. H. LAWS,***
Lavaca, Seb. Co., Ark.

WALTER S. POUDER,
162 Mass. Ave. Indianapolis, Ind.
SUPPLIES Standard Goods—Popular Prices—Catalogue Free.
"BUSY BEES"
A book telling how to manage them—10 cts. in stamps; or free to those sending names of 5 bee-keepers

HONEY COLUMN.

CITY MARKETS.

BUFFALO.—*Honey.*—Honey is moving very slowly. Concessions have to be made at quotations. Fancy, moderate way, 13@14; choice, 10@11; buckwheat, 9. Beeswax, 20@25. BATTERSON & CO.,
March 18. Buffalo, N. Y.

ST. LOUIS.—*Honey.*—Honey is slow. Comb, 10@13. Extracted, 3½@4¼. Prime beeswax, 26@26½.
D. G. TUTT GROCER CO.,
March 19. St. Louis, Mo.

KANSAS CITY.—*Honey.*—The demand for honey is not improving as fast as we should like to see it. We quote No. 1 white 1-lb. comb at 14@15; No. 2, 13@14; No. 1 amber, 12@13; No. 2, 10@11. Extracted, 5@7. Beeswax, 20@22.
CLEMONS, MASON & CO.,
March 18. Kansas City, Mo.

DETROIT.—*Honey.*—Prices remain the same as two weeks ago, but the better grades of comb honey are getting scarcer. Beeswax firm at 25@26.
M. H. HUNT,
March 19. Bell Branch, Mich

CINCINNATI. *Honey.*—Trade is dull; prices nominal. We quote 4@8c for extracted; 12@15 for choice white comb. There is a fair demand for beeswax at 20@25 for good to choice yellow.
CHAS. F. MUTH & SON,
March 20. Cincinnati, Ohio.

KANSAS CITY.—*Honey.*—We quote you No. 1 white 1-lb. at 12; No. 1 amber, 1 ; No. 2, 10. Extracted, white, 6½@7; dark 5@6. Beeswax, 20@22. Demand for honey only fair; supply good.
HAMBLIN & BEARSS,
March 18. Kansas City, Mo.

CLEVELAND.—*Honey.*—No change in honey market this week. New maple sugar and syrup seem to have lessened the demand somewhat.
WILLIAMS BROS.,
March 17. 80 & 82 Broadway, Cleveland, O.

CHICAGO.—*Honey.*—Comb honey continues to sell in a small way, the demand being principally for nice white comb, at 14@15c per lb. There is as yet no demand for the dark grades of comb, and such are being disposed of at best prices obtainable. Extracted is selling at 5@6. Beeswax is very firm; sells upon arrival at 25c for pure goods.
S. T. FISH & CO.,
March 19. 189 South Water St., Chicago, Ill.

ALBANY.—*Honey.*—Market very slow now; the demand about over on comb; some extracted wanted at 5c if dark color. Beeswax firm at 26@27c.
H. R. WRIGHT,
March 23. 326 Broadway, Albany, N. Y.

BOSTON.—*Honey.*—Demand light, supply fair. Comb, 12@14; extracted, 5@7c. Beeswax, 25c; demand fair, supply fair. E. E. BLAKE & CO.,
Successors to Blake & Ripley,
March 23. Boston, Mass.

SAN FRANCISCO.—*Honey.*—Market is firm, and the prospects for the coming crop are very unsatisfactory in consequence of the dry season in Southern California. We quote extracted honey 4¾@5½c, the latter for white, and the former for light amber. Comb honey, 1-lb. sections, 9@11c. Beeswax scarce at 23@24c. SCHACHT, LEMCKE & CO.,
March 21. San Francisco, Cal.

ST. PAUL.—*Honey.*—Choice white Calfornian comb honey, 1 lb. sections, 12½@13c; dark honey, 10@11; market quiet and dull. Extracted, white, 5½@6; light amber, 5¼@5½; dark amber, 4@5½; market for extracted steady, demand fair.
SMITH & AUSTRIAN,
March 24. St. Paul, Minn.

ALBANY.—*Honey.*—There was a good demand for both comb and extracted honey the week before Easter; since then, however, the demand has fallen off somewhat. Prices remain unchanged. Comb honey, 10@12; extracted, 5@7. Beeswax in good demand at 26@27. CHAS. MCCULLOCH & CO.,
Mar. 24. 393, 395, 397 Broadway, Albany, N. Y.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

GOLDEN ITALIANS.

If you want bees that are large, beautiful, very gentle, and great honey-gatherers, try my Golden Italians. They are pronounced very fine by W. Z. Hutchinson and many others. Satisfaction guaranteed. One untested queen, 80 cts.; three for $2.00. One warranted queen, $1.00; three for $2.50. Tested queens, $1.50 each. Selected tested queens, $2.00 each.
C. M. HICKS, Hicksville, Wash. Co., Md.
☞In responding to this advertisement mention GLEANINGS.

I have one of the choicest flocks of
Brown Leghorns in the State.
Keep no other kind Eggs, 75c per 15; $1.25 per 30.
B. G. SCOTHAN, Rogersville, Mich.

SECTIONS CHEAP!

Until sold, we will sell the sections listed below in quantities of 500 or more at $1.50 per thousand for creams, and $1.00 per thousand for No. 2. All 4¼ x 4¼ sections, open two sides.

41,000	2 inch	cream.	37,000	2 inch	No. 2.
47,000	$1\frac{3}{4}$ "	"	91,000	$1\frac{15}{16}$ "	"
116,000	$1\frac{7}{8}$ "	"	20,000	$1\frac{7}{8}$ "	"
134,000	7 to ft.	"	87,000	$1\frac{13}{16}$ "	"

253,000 7 to ft. No. 2.
PAGE & KEITH, NEW LONDON, WIS.
☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS. Untested, 80 cts. each; 3 for $2.25. Tested, $1.25. Select tested, yellow to the tips, breeders, $1.50.
eift ***G. E. DAWSON, CARLISLE, ARK.***

FREEMAN POTATOES.
Grown from genuine stock; of market size, and free from sprouts. Price $4 per bbl., f. o. b. cars at Zanesville. **C. B. BELL, Adamsville, Ohio.**

Italian Bees and Queens
Ready in May. Queens, $1.00; bees by the lb., $1.00; 1-frame nucleus, $1.25; 2-frame, $2.25. Also Barred P. R. eggs for setting, 15 for $1.00.
Mrs. A. A. Simpson, Swarts, Pa.

For Sale. 8 to 30 colonies bees at New Buffalo, Mich., at $3.50 per colony. Address
R. S. BECKTELL, Bellaire, Mich

Look Here, Bee-keeper!
If you are in need of some bee-supplies, write for catalogue and price list. Everything sold as cheap as the cheapest. **W. E. Smith.**
Kenton, Hardin Co., O.

For Sale. 25 colonies of bees in lots to suit the purchaser. Cheap.
CHAS. DALLET, 3202 Chestnut St., Philadelphia, Pa.

Choice Barred Plymouth Rocks and eggs. Before buying, get circular and price list of *C. B. WAY, Shreve, Ohio.*

I will sell stocks of pure Italians on 7 frames, in portico hives, at $5.50, or 2 in one order for $10.00.
C. G. FENN, Washington, Conn.

WILLIAM HEASTMAN, CITRA, FLA.,
Breeder of the celebrated "Orange-blossom" Italian Bees and Queens. Untested, 75 cts.

Choice Novelties in
Carnations, Roses, and Seeds.
15 plants for $1.00. Carnation seed, 25c per pkt. Send for catalogue. *S. LENTON,*
Piru City, Ventura Co., Cal.
☞In responding to this advertisement mention GLEANINGS.

TESTED

Queens are usually sold for $2.00. I will explain why I wish to sell a few at less than that. As most of my readers know, I requeen my apiary each spring with young

QUEENS

From the South. This is done to do away with swarming. If done early enough it is usually successful. It will be seen that the queens displaced by these young queens are never more than a year old: in fact, they are fine tested Italian queens, *right in their prime;* yet, in order that they may move off quickly, and thus make room for the untested queens, they will be sold for only

$1.00.

Or I will send the *Review* for 1894 and one of these queens for only $1.75. For $2.00 I will send the *Review*, the queen, and the book "Advanced Bee Culture." If any prefer the young laying queens from the South, they can have them instead of the tested queens, at the same price. A discount given on large orders for untested queens. Say how many are wanted, and a price will be made.

W. Z. HUTCHINSON, Flint, Mich.

Quigley's Golden Italians

Are big yellow bees that are hardy, gentle, and good honey-gatherers. Warranted queens, April and May, $1.00 each. Safe arrival and satisfaction guaranteed. Every thing needed in the apiary, best quality, bottom prices, low freight. Price list free. ***E. F. Quigley, Unionville, Mo.***

TESTED ITALIAN QUEENS, $1.00 each; Select tested, $1.50; untested, 65 cts. Two-frame nucleus, with tested queen, $2.00; with untested queen, $1.50. Queens ready April 1.

Stewart & Cooper, Quebeck, Tenn.

5-BANDED GOLDEN ITALIAN

Bees and Queens. Pure B. P. Rock and S. C. B. Leghorn eggs, $1.00 per 13. Best only. Catalogue free.

Chas. H. Thies, Steeleville, Ill.

Ladies' Fine Shoes. Worth $3. Our Price, $2.

Genuine Kid, Elegant Style, Soft Soles; Easy, Perfect Fitting; Any Style, Lace or Button; Plain Toe or Pat. Tips, Narrow or Broad Toe. Sizes 1 to 8; Widths, C, D, E, and E E. Send your size, Sure Fit. Sent postpaid on receipt of $2.

C. L. Griesinger, Medina, O.

P. S.—Your shoes wear splendid.
M. T. WILLIAMS.
Trumansburg, N.Y.

Sections, Bee-Hives, and other Bee-Keepers' Appliances at Bed-rock Prices.

Best of Goods at Lowest Prices.

Write for free, illustrated catalogue and Price List.

G. B. Lewis Co., Watertown, Wis.

ITALIAN QUEENS,

At prices that will surprise you when you have seen the stock. Nothing but the purest Italians (Imported and Golden) in the apiary. Tested Queens, $1.00 each. Untested, 75 cts; $8.00 per doz. Orders filled by return mail. Safe arrival and satisfaction guaranteed.

J. W. K. SHAW & CO., LOREAUVILLE (Iberia Par.), LA.

Dr. Tinker's Bee-Book Free

To a NEW Subscriber who sends $1.00 for a year's subscription to the **Weekly AMERICAN BEE JOURNAL.** Dr. Tinker's 80-page book is called,

BEE-KEEPING FOR PROFIT,

and has something valuable on BEE-PASTURAGE. A Sample Copy of the "Bee Journal" is sent FREE.

GEORGE W. YORK & CO.,
56 Fifth Avenue, - - CHICAGO, ILLS.

☞ To New Subscribers—the JOURNAL alone for **three months for 20 cents.**

AT THE WORLD'S FAIR THE PORTER BEE ESCAPE received the ONLY award given an escape. Practical bee-keepers everywhere use and recommend it as a great labor-saving implement, and as the best. Circular and testimonials free. Prices:—Each, postpaid, with directions, 20 cts.; per doz., $2.25. *and your money back, if not satisfied.* Order from your dealer, or if more convenient from the manufacturers, **R. & E. C. PORTER, LEWISTOWN, ILL.**

---

13 Carloads of Supplies. This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially **FOR THE WEST.**

Joseph Nysewander, Des Moines, Ia.

GLEANINGS IN BEE CULTURE

A Journal devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

Published by A. I. Root.

$1.00 per Year Medina Ohio

Vol. XXII. APR. 1, 1894. No. 7.

STRAY STRAWS

FROM DR. C. C. MILLER.

Hasty's had the grip. But he hasn't lost his grip as a reviewer.

Adulteration doesn't seem to be much hushed up in last Gleanings.

Narrow sections are more quickly filled. Ought they not on that account to be whiter?

Soft maples bloomed here March 10—22 days earlier than last year. [Yes, they were in bloom here earlier yet by two or three days.—Ed.]

Sections 1⅝ wide, with separators, will contain comb 1⅛ thick, the same as the honey part of brood-combs spaced 1⅜; 1⅞ sections will have 1⅜ combs.

Yellow-jasmine honey, according to Mrs. C. L. Rice, in *A. B. J.*, is not poisonous, but the pollen is. [Is not Mrs. R. mistaken? How is it, Dr. Brown?—Ed.]

The bee-papers are discussing whether bee-papers should be discussed, and the *noes* have it. *Allee samee*, bee-keepers do discuss them. [Allee samee, some of 'em get mad.—Ed.]

On reading page 242 I was struck with the strong similarity between the intimate acquaintance friend Root mentions and a constant attendant I have away out in Illinois.

Don't Medina printers know how to spell catalog*ue*, or has Jake Smith disciples among them? [Yes, but we prefer the modern *short* way. We also prefer "program" to program*me*.—Ed.]

The old-fashioned way of having hives in a straight row facing the same way has one big advantage for those who watch for swarms—one look along the row tells whether any are swarming.

The Bee-keepers' Union, more than ever, seems to be looked upon as a protection for bee-keepers in different ways. Those not members get benefits from it; but is it fair for you to enjoy the benefits without helping to support it?

Keep in mind that, aside from prevention of burr-combs and sagging, we need thick top-bars to keep our sections white. Did you ever notice that, when sections begin to darken, it's always at the part nearest the brood-combs?

If James Heddon has any solid arguments against discussing adulteration, now is the time to bring them into use. After all, if he really believed that adulteration was a good thing for bee-keepers themselves, why shouldn't he go into it?

I'm anxious to hear a report of your trial of that percolator, Ernest. It's a big thing to have syrup that "will never sour or granulate." Cooked syrup *will* granulate without acid, and sometimes with, and I'm afraid the acid isn't a good thing for winter.

"The indications are strongly in the direction that wax used for containing honey only is whiter than and different from that intended by the bees to become a part of the brood-chamber."—*C. B. J.* May be so; but, please tell us *what* indications.

Jake Smith says, "Some likes jist the white part" of onions, "and eats tops and all." Does that mean grub is so scarce in his region that people have to eat what they don't like, or has Jake been drinking? [Now, Doctor, you needn't poke fun at our friend Jake.—Ed.]

In reply to friend Shepherd, p. 225, I never found the progeny of the new queen crosser when I had killed the queen of a cross colony. Not only were they always gentler, but I was puzzled to find that sometimes there was a marked improvement before the old stock had time to die off. Of course, I never raised a new queen from the cross stock.

Go slow on that $1\frac{1}{8}$ spacing. With new comb it leaves a passage of ¼ inch, the space becoming constantly less as the comb grows older. I have combs an inch thick, and that would leave only ⅛ space, too small for either queen or worker to squeeze through.

A murmur of disagreement as to the murmur of bees is heard between Pettit and Doolittle. Doolittle thinks it's a good thing sometimes in the cellar, and Pettit knows it's always bad. [This Straw would have been better if you had told what *you* think, know, or don't know, Doctor, on this question. You can redeem yourself by dropping a Straw in the next batch.—Ed.]

"Our first winter occurred Feb. 23. Bees have flown lively all through the winter 5 days out of 6, and so their stores have disappeared," writes Dr. W. S. Adams, from Guy, Md. It's some comfort for us in the frozen regions to know that it takes more honey for bees in a warmer climate, but I believe I'd rather furnish the honey and be pinched less with the cold.

A rabbet is cut in the end of a hive, then a rabbet is nailed on that rabbet, the one rabbet only being called a rabbet because it's nailed on to a rabbet, for it wouldn't be a rabbet if the other rabbet wasn't first rabbeted. There's no confusion, but it seems just a little mixed. [That's true; but even if mixed, the name answers practical purposes. If we were to change we'd be both mixed and confused.—Ed.]

The Ontario convention emphasized the point that, in summer, an opening in the upper part of the brood-chamber gives *downward* ventilation. I never thought of it before; but you know when you put the back of your hand at the entrance when bees are ventilating, the blast always comes out of the hive, and so it may be expected to come *in* at the top. [But suppose the top is sealed up tight?—Ed.]

Y. P. S. C. E. are initials I first saw in a private letter from A. I. Root 13 years ago. I hadn't the slightest idea what they meant then, but now they're known all over the world. "Christian Citizenship" has started in this region, and will likely spread the same way. Look out for it in your neighborhood. [We flatter ourselves that we have been among the first to grasp new and practical ideas.—Ed.]

Canadian bee-keepers are looking with longing eyes in this direction, S. T. Pettit saying in convention, "Across the line in the United States is our best market." At the same time, England is kicking vigorously against our sending any honey there. Well, that altitudinous Canuck, Pringle, worked hard to establish a market at the big show; and if his compatriots can't eat all the honey they can raise, I believe in giving them an open market on this side. [See Elwood's remarks on this point, in this issue.—Ed.]

THE EIGHT VS. THE TEN FRAME HIVE.

AN INTERESTING DISCUSSION BETWEEN R. L. TAYLOR AND DR. C. C. MILLER.

Dr. C. C. Miller:—

My Dear Friend and Brother:—Yours of a late date, "commending to my consideration" the fact that you "don't remember" any practical proofs that for comb honey eight-frame hives are better than ten-frame ones, was duly received. I suspect you want me to make an experiment to prove or to disprove it. If so, I want to express to you my thanks that you are beginning to take a little interest in the "experiment business." But won't you come to my relief, and point out some method of experiment, by pursuing which satisfactory results may be obtained? I don't want to allow you to get me started on a wild-goose chase. Don't we know something about it now? I commend to your consideration the following points:

1. For the highest success in the production of comb honey, we want plenty of bees in good season. Now, other things being equal, in this latitude more bees will be produced early in an eight-frame hive because there is less space to be kept warm.

2. We want all the bees we can induce the colony to rear, up to the point of time when new bees will fail to return a profit. *In our latitude* we shall get more bees in the eight-frame hive, because, having less space to keep warm, the bees will increase faster early; and, in 99 cases in 100, the eight-frame hive would contain all the brood that can return a profit—all that can be started, say, up to June 15th; and as the tendency is then still to increase the amount of brood, the colony in the ten-frame hive will waste much more of the honey they gather in rearing unprofitable bees than will the one in the eight-frame hive.

3. For the greatest success in the production of comb honey, the bees must take possession of the sections promptly, and all the bees not required to care for the brood, destined to be useful, must join. In securing this action, the ten-frame hive, having more space below, and, as a rule, more brood that will prove a damage, and greater accumulations of honey in the brood-chamber, all of which circumstances have a powerfully restraining influence to keep the bees from going into the sections in full force, is manifestly at a great disadvantage. Therefore—

4. For comb honey, the eight-frame hives are better than the ten frame. Q. E. D.

For our latitude I can not see that the ten-frame hive has a single point of superiority. You may say this is all "circumstantial evidence." Well, many a man has been justly hanged on circumstantial evidence that was less conclusive. Nevertheless, I shall be happy to make the experiment if you can suggest any method that will give promise of any definite result. R. L. TAYLOR.

Lapeer, Mich., Feb. 1.

[Dr. Miller replies:]

As I believe this to be a matter of general interest, friend Taylor, I take the opportunity to reply to you on the pages of GLEANINGS. And, first, I return to you unopened your thanks that I am "beginning to take a little interest in the experiment business." I'm too indignant to accept them. "Beginning," forsooth! If there's any one who has taken a keen interest in the affair from the very first start, I'm the man. But I haven't time to quarrel with you about that just now.

Yes, you've guessed exactly what I want—a practical answer to the question, "Which is best for comb honey, 8 or 10 frames?" And I want the answer from the bees. Others may be as well situated to ask them the question as you, but I have a good bit of faith in the facility you have acquired to rightly interpret in plain English the replies given by the bees.

You ask, "Don't we know something about it now?" Candidly, I don't know. Some years ago nearly all comb-honey men changed to eight frames, in the belief that they were the gainers; but if in any case the question was fairly submitted to the bees I don't remember to have seen any account of it. You know very well that, time and again, very pretty theories have been started, every thing clearly proven on paper, winding up with a decisive Q. E. D., and then, when the bees were politely requested to accept the theory and act upon it, they would none of it.

I will now consider the points you commend to my consideration, and shall be glad to coincide with you wherever I can.

"We want plenty of bees in good season." Agreed.

"More bees will be produced early in an eight-frame hive" is an assertion, and I'd rather take the bees' word for it than yours. You give as a reason, "Because there is less space to be kept warm." If that counts for any thing, then a six-frame hive is still better, "because there is less space to be kept warm."

"We want all the bees we can induce the colony to rear up to the point of time when new bees will fail to return a profit." Agreed.

Your statement that, in our latitude, we'll get all the bees we want by June 15th in an eight-frame hive, and after that the ten-frame hive will raise a lot of wasters, reads very smoothly; but I'd like to know what the bees say about it. You say the bees will increase faster early, having less space to warm, and there may be truth in that if the same number of bees is in each hive; but have you settled positively that colonies in eight-frame hives will average as strong at the close of winter as colonies in larger hives? And if there's enough honey in the larger hive, may not the empty space be less than in the smaller hive?

For fear of bringing a storm about my ears from a good many quarters, I want to be just as quiet and meek about it as possible, but still I want to suggest very gently that, if any one were inclined to be inquisitive, he might ask—mind you *I'm* not asking the question—whether the bees had ever stated, in a positive manner, that a lot of brood late in the harvest was a damage. A young man may get ahead faster in laying up this world's goods after he has a wife to support than when he was all alone. He has something to try for. Is it not possible that, with a large number of mouths to feed, the bees may buckle down a little harder?

"The bees must take possession of the sections promptly, and all the bees not required to care for the brood destined to be useful must join." Agreed.

"The ten-frame hive, having more space below, and, as a rule, more brood that will prove a damage, and greater accumulations of honey in the brood-chamber, all of which circumstances have a powerfully restraining influence to keep the bees from going into the sections in full force, is manifestly at a great disadvantage." How do you know all that? Do the bees say so? Is it a fact that a greater amount of brood and honey below restrains from going into the sections? If you take away all the brood and all the honey from below, will the bees go up into the sections with a rush? If the brood-chamber be chock-full of brood and honey, will the bees be entirely restrained from going up? Isn't the truth exactly the opposite?

I don't object to "circumstantial evidence." If more men were hung on circumstantial evidence, I believe human life would not be so cheap as it now is. But if there's any way to secure positive evidence, I do think it should take precedence. It is with no little diffidence that I make any attempt at suggesting methods. I much prefer merely to suggest the question, leaving you to work out your own methods. I think you are more fertile in that direction than I. If I were to suggest any thing, it would be something in this line:

Take ten colonies in eight-frame hives, and an equal number in ten-frame hives. Aside from the difference in the size of the hives, let them be as nearly alike as possible. To make the test satisfactory they should have been in the same hives last summer, and wintered over therein. This not being practicable, the colonies in the ten-frame hives should be put in the same condition as if they had wintered on ten frames. It would be manifestly unfair to take a colony out of an eight-frame hive and give it two empty frames or combs on putting it into the larger hive, unless you prove that all ten-frame hives have generally two such frames or combs in spring. If any feeding is done either fall or spring, both should be fed alike. I think I need carry the suggestions no farther. The question I want answered is this: Taking a series of years, shall I get more comb honey with eight-frame or with ten-frame hives?

I beg that you will believe, my dear friend—and I am sure you will take my word for it—that I am not saying a word for the sake of mere argument. I want to know the truth for the sake of the dollars and cents in it. It is not a fondly cherished hope with me that I may find the ten-frame hive is better; but it is to some extent a fear. I shall be delighted to be convinced that the eight-frame is better, for I much prefer it if I can retain it without loss. There are some reasons that I can not take time now to give, that have great weight with me in making me fear that I have been making a mistake these years in working exclusively with the smaller hives. I am just a little afraid that we all went like a flock of sheep, without knowing fully what we were doing. Wasn't it mostly if not altogether on theory? If there are reasons, theoretical or practical, will it not be for the interest of all to have the matter fully discussed and fully tested?

Marengo, Ill. C. C. Miller.

[We had supposed that the question of the eight-frame was settled, at least for most localities in the Northern States—localities having one short spurt of a honey-flow of three or four weeks in early summer and another slight flow of dark honey in the fall. If the question is not settled, let's *make* the bees tell us.

Our friends the Dadants will go "agin" the whole of us, and we must acknowledge that they present some pretty good arguments favoring not the ten-frame but a little larger hive, in their book, Langstroth Revised. While Bro. Taylor is getting ready to "talk back" we should also like to hear from the Dadants.—Ed.]

NOTES AND COMMENTS ON SEASONABLE TOPICS.

A CHEAP WAY TO BIND GLEANINGS; THE WILSON BILL ON HONEY; THE DIFFERENCE BETWEEN NATURAL COMB AND THAT FROM FOUNDATION.

By P. H. Elwood.

It may be a matter of interest to the editor of Gleanings to know whether his subscribers carefully preserve their journals for future reference, or toss them into the waste-basket. I have mine from the beginning; and, although they are not often referred to, occasionally it is quite necessary to do so, while a hasty glance through them shows the progress made in bee culture and bee-journals. Where a subscriber does not wish to go to the expense of binding, a very good way is to place the numbers in order upon a board and drive four or five wire nails through their backs into the board. Then loosen them from the board and clinch the nails. The nails should be heavy enough not to bend with light driving, and long enough so there is from a quarter to a half-inch for clinching. If the nails are too heavy they do not clinch well. A year makes two volumes. For a cover, nail on a couple of pamphlets of the right size, or a pasteboard cover. This method does not injure the journal for future binding, and is a great improvement over having the journals around loose. It takes but a few minutes' time.

After nailing I look them through carefully to refresh my memory, and to get some points that I may have overlooked in the busy season. I notice that the subject of sealed covers or no upward ventilation was pretty well discussed, both *pro* and *con*, in last year's Gleanings. The "cons" appear to have it. Years ago, when we wintered out of doors, and, as a consequence, bought a good many bees, we found that bees wintered indoors with no upward ventilation were decidedly better than those wintered otherwise. Those wintered in the same way out of doors were also better when sufficient protection was given to prevent condensation on the upper part of the combs. This, however, is very difficult to accomplish in this severe climate. Too much ventilation is usually given to outdoor swarms. One fall we packed 37 colonies in dry sawdust, from four to six inches thick. All except two were covered with nice new quilts, and all died except the two that had the old quilts, well covered with propolis, over them. Since then I have noticed many similar cases. For indoor wintering, unless the cellar is very damp, no upward ventilation of the hive is needed. We have not practiced it for years, and are well satisfied with the change. The best wintering I ever saw or heard of was last spring, where a large lot had been wintered with closed tops.

The Wilson bill, as passed in the House, lowers the duty on honey to ten cents per gallon. The present duty of twenty cents should be retained. Vigorous protest, undoubtedly, has been put in by our National and State societies against the proposed change. If there are no vigorous protests, there is danger that the last ten cents will be knocked off. California and the South will suffer the most by the change, but it will be the "last straw" for many bee-keepers elsewhere. Very many are now going out of the business, and but few, comparatively, going in. Market-gardening, small - fruit growing, and intensive farming, are advocated in Gleanings for those contemplating a change or addition to their present business of bee-keeping. The articles on onion culture, in the Mar. 1st number, are especially valuable for this class.

Since writing the above I observe by the report of the Ontario Association that our Canadian friends have their eyes upon our market for comb honey. Mr. Pettit says, in commenting upon the report of Mr. Pringle, Superintendent of Canadian Honey at World's Fair, Chicago, that "it reiterates what I said at Walker-ton, that across the line in the United States is our best market. The closest market is the best, and we must keep our hands clean, and have a pure article. to give us the best advantage there." Mr. Pringle stated that he had been hampered by a specific duty of twenty cents per gallon on honey. On comb it had been figured out by a "peculiar arithmetic and guessing" to be from two to three cents per pound. Referring to the so-called sugar honey, he is reported to say that, under these circumstances, the advantages of Canada would be seen in the United States markets, not only for extracted, but for comb honey, so long as we keep it pure and undefiled. He could take a hundred tons of Canadian honey to Chicago tomorrow, and sell it readily at excellent prices. It may seem hard to our Canadian brethren to have a duty imposed upon their products; but *so long as they consent to have their foreign policy* (*war*) *dictated by rulers over the sea, secret enemies of our institutions*, they can hardly expect us to use our resources in such a way as to develop their strength.

ROOT PERFORATED ZINC A SUCCESS.

We have used a good deal of the Root perforated zinc for the purpose of keeping the queen confined to one story when extracting, and at other times, and it is a success. A few queens escape, but usually it is found either that the queen has passed through some opening imperfectly closed outside of the zinc, or that she is undersized. It would hardly seem advisable to change the size of the perforations for general purposes. We have not been successful in keeping two or more queens in the same hive. Even caged virgin queens in queenless stocks are not as well cared for as they ought to be.

TAYLOR'S FOUNDATION EXPERIMENTS.

The experiments of Mr. Taylor, on comb foundation, are very interesting, and, if continued, will be very profitable to producers of comb honey. Of course, one trial determines little. I shall expect, with further experimenting, that Mr. Taylor will reverse his opinion that old foundation is as good as new; also that the thickness of the base in foundation has little influence on the thickness of the base in finished comb. Further experimenting will probably also decide that, within reasonable limits, the less wax put into foundation, the better. Not only is the cost much less, but the comb honey is much better. Comb can be converted into wax, but wax can not be converted into flaky comb. The wax in drawn-out foundation chews up into wads, while chewed comb is brittle or in flakes. Where the bees thoroughly work over the foundation, as is oftener done with flat-bottom and Given foundation than with any thing else I have tried, there seems to be less of this objectionable toughness. The quality of the wax used also makes a very great difference in this respect. The Given press is a success in making brood foundation. After the frames are wired, foundation can be made with it as fast as or faster than other kinds of foundation can be fastened into empty or wired frames. The press sent me was not adjusted nicely enough for surplus foundation; Besides, there was the difficulty of dipping sheets of uniform thickness throughout. The bees work this foundation quickly, but I can not say whether the base of the heavy side walls is always thinned down as much as is desirable for comb honey. Our method of wiring frames is to have the top and bottom bars sawed in two pieces. Then place fifty or more of these pieces side by side on a flat surface, with a lath frame over them having the slats the same distance apart as the wires are to be. A sharp knife is then drawn down alongside of each slat. The frames are next nailed together, using but the one creased piece at top and bottom. The knife-cuts make a fine place for laying in the wires; and, immediately after wiring, the other piece of the top and bottom bar is nailed on. We use a lath form of similar construction for cutting up foundation.

A NEW FACT ON BEES AS FERTILIZERS.

By all means, give us the facts on the fertilization of flowers by the honey-bee. Bees are an *assistant* in fertilization. With a few flowers they are a *necessity*. They are always valuable and never harmful. Any attempt to prove them so is but a waste of ink. Mr. Crane's article can not be too highly commended as a compendium of the main facts in the case. Especial attention is called to the increased vigor arising from cross-fertilization in contrast with fertilization from the flowers of the same plant or tree. Mr. Cheshire says (page 323, Vol. I., "Bees and Bee-keeping"), "The apple, as its blossom indicates, is strictly a fusion of five fruits into one—hence called *pseudosyncarpous*—and demands for its production in perfection no less than five independent fertilizations. If none are effected, the calyx, which really forms the flesh of the fruit, instead of swelling, dries, and soon drops. An apple often develops, however, though imperfectly, if four only of the stigmas have been pollen dusted; but it rarely hangs long enough to ripen. The first severe storm sends it to the pigs as a windfall. I had two hundred apples, that had dropped during a gale, gathered promiscuously for a lecture illustration; and the cause of falling, in every case but eight, was traceable to imperfect fertilization. These fruits may be generally known by a deformity —one part has failed to grow because there has been no diversion of nutrition toward it. Cutting it across with a knife, we find its hollow cheek lies opposite the unfertilized dissepiment." Frank Benton is in a position to thoroughly write up this subject and have it sent all over the country by bulletin from his department. A general knowledge of this subject would give prestige to our business, and be a greater help in securing needed legislation than any thing else we can do.

Starkville, N. Y.

[Mr. Elwood does not write often; but when he does he seems to be loaded with facts. He is a keen observer, and one of the most extensive bee-keepers in the world, and we are sure our readers will read this with unusual care.—Ed.]

THE PINES.

WINDBREAKS; ARTIFICIAL HEAT IN BEE-CELLAR; V-SHAPED STARTERS NOT A SUCCESS; WHEN TO SET BEES OUT OF THE CELLAR.

By H. R. Boardman.

It may be new to you that my home here is becoming known among many of my friends by the above rather unique name. The profusion of ornamental pine-trees, and especially the long row that constitutes a grand windbreak for my apiary and home buildings, are its origin. And this brings us to the subject of windbreaks.

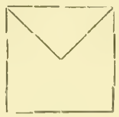
I am sure that, if windbreaks were fully appreciated, there would be more of them put out. They add wonderfully to the comfort of a home in checking the force of the fierce winds of winter and spring; and especially are they valuable to the apiary—so valuable that I think they deserve more than a passing notice. So well protected are my premises by strong dense pines that the fiercest blizzard is tempered to a mild breeze, and it is often pleasant and agreeable in the yard while the pines rock and roar, and shake their heads, while outside the weather is almost intolerable. No tree that I know of is better adapted for windbreaks than these coarse strong rapid-growing pines. So much for the pines.

The bees at "The Pines" are in splendid condition. I set out six colonies at the beginning of the warm spell, about the 2d of March, to see if they still knew how to fly. Their first flight showed them to be in as perfect condition as in November, when they were put into the bee-house, so far as I could discover; no more spotting of the hives than at their last flight last fall; brood-rearing is well advanced in most colonies. There has been a fire in the bee-house kitchen stove once a week ever since the bees were put in, until the beginning of the present warm spell. Artificial heat in the bee-house in winter is growing in favor with me with each year's experience.

In order to have my "hunny good the yeer round," as Jake Smith says (in case I should carry it over), I crated and removed it to a warm corner in my dwelling-house. But I have since hit upon a much better way. I sell it and have it out of the way, and am ready for the next season's crop. It is nearly all closed out now.

There are a few little experiences in my recent work in crating and shipping honey that might be worth mentioning while they are still fresh in my mind. After meeting with some loss and vexation by breakage in shipping, I tried crating the cases into large crates, as recommended at the Home of the Honey-bees and by others. It has proved entirely satisfactory so far.

For the last two seasons I have been trying V-shaped pieces of foundation in the sections.



It compared so favorably during the season with sections filled with foundation that I began to be flattered that it might be economy to use it in that way; but I found there were very many of these sections with starters in, especially toward the close of the season, that the bees forgot to attach the sides and bottom entirely, or in only a frail manner. Then the large amount of natural comb necessary to fill the section adds still further to their frailty; and while I do not object to these on this account for my own use, I shall hereafter use foundation full width, if not full depth, for all comb honey that is to be shipped. I use sections of two sizes—the 4¼x4¼ in., and a larger size holding about 1⅓ lbs. When I see how much nicer and better the larger size is always filled, I am forcibly convinced that the one-pound section has been a great mistake, a misfortune to bee-keepers, and I am not sure that it has been of any advantage to dealers.

I do not think there is any advantage in setting bees out of winter quarters at this time of the year, provided they are in good condition; but I have been watching the mercury and the daily weather report with increasing anxiety each day. As the temperature went higher and higher, 60 to 66°, and yesterday it rested at 70° for a considerable time, while in the bee-house, although not as high as outside, still it was warm enough, and gradually growing warmer. I went in this morning and made a careful examination. I stood a few moments in the dark, and listened attentively. The high temperature had increased the gentle hum of a few days ago to almost a roar. Bees were making aimless flights about in the dark. I struck a match and lighted my lamp—temperature, 62-3. Great clusters of bees were suspended beneath the hives from the bottom of the frames. A good many dead bees had accumulated on the floor in the last few days; many were yet struggling, and others seemed to be playing at hop, skip, and jump over their dead and dying companions. "Oh!" said I, "this looks wicked;" but I learned years ago not to allow my sympathies on such occasions to get the better of my judgment, and go and put the bees out before it was time. Of course, I should prefer to control the temperature so that they would not fly out and perish in a wholesale way, if it were possible; but I know from experience, that, if they were put out, the mortality from chilling would be much greater. Even when in the best possible condition they become restless at a temperature of about 60°, and then they straggle out of the hive and are lost in the dark. If a much higher temperature prevails they begin to cluster outside the hive.

East Townsend, O., Mar. 6.

[Yes, indeed, pines make the best windbreaks in the world. You know our apiary (see large cut on next page) is inclosed in a large hollow square of tall evergreens. As you say, it is much more comfortable on windy days *inside* of this square than out. The only trouble with the evergreens is that they are so long in growing.

There was a time when the V-shaped starters received more favor than now; but if we remember correctly they were abandoned for the very reason you give.

And so you are beginning to favor artificial heat in winter repositories? This will give Dr. Miller a grain of comfort. He has stood almost alone in the advocacy of this idea; in fact, has almost been ridiculed for holding to such a foolish and antiquated notion.—Ed.]

MANUM IN THE APIARY

AND IN THE GARDEN; THE MANUM-LANGDON NON-SWARMER.

By A. E. Manum.

"Well, Mr. Daggett, we shall be obliged to defer our trip to the Eaton yard to-day, which we had planned to take, as Mr. H. W. Scott, of Barre, Vt., has just arrived, having come on the morning train; and as he says he must return on the afternoon train, we will spend the day with him here in the home yard, where I can show both of you my new non-swarming hive, and at the same time explain to you both its workings, and my experience with the Langdon-Manum non-swarming method. I see you are busy writing this morning; therefore, while you are finishing your writing I will show Mr. Scott over the farm, as he is more or less interested in farming. First, Mr. Scott, I will show you my potatoes. Here are 5½ acres in one field, and, as you see, they are just in blossom."

"Oh, my! Manum, what a fine field of potatoes, and what long straight rows! How in the world did you manage to get the rows so straight? Why, there is not a crook in them; and, besides, I see no weeds."

"The rows are 40 rods long; and to get them straight, two of us marked them out with a two-horse marker. I drove the team while my man held the marker; and the secret of these 5½ acres being so free from weeds is in having worked the ground thoroughly and often, with a cheap smoothing-harrow I made myself with old steel rake-teeth. The potatoes have been hoed but once, very lightly at that. I offer to give $1.00 per bushel for every bushel of weeds any one can find on the 5½ acres."

"Why, here are strawberries, and a fine bed it is too."

"Yes, this is my new bed of just one acre, and I will *double* the price for weeds on this acre. I shall soon make a picture of this bed to send to our friend A. I. Root. Over here I have raspberries, mostly Cuthberts. I have, however, three rows of the Shaffers that I want you to notice in particular."

"Oh, my! What a rank growth of canes! Here is one that must be over 6 feet long."

"We will see. Yes, it is 7 feet 9 inches long. I have not nipped this hill back. I want to see how tall these Shaffers will grow when not checked. The berries, as you will see, are large and very handsome, and I assure you they are fine-flavored. Here comes Mrs. M. with her baskets. I think she intends to have you test them at dinner with sugar and cream. *We* think they are very fine. We will now go to the apiary, as I see Mr. Daggett is there waiting."

"What have you here, Manum—a new variety of oats?"

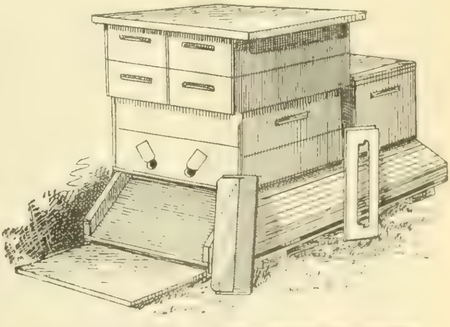
"Yes; they are the White Plume, a new variety that I introduced last spring; and, so far, I am well pleased with them, as they promise a large yield, you see by the long and well-filled heads."

"Why, Manum, I never saw such a fine field of oats. Just measure this head. It must be 12 inches long."

"I hardly think it. No, it is only 10¾ inches long; but my man found one a few days since that was 13½ inches long, and I have found a number of stools with 14 stalks, and one of my neighbors reports having found one with 18 stalks, all from one seed."

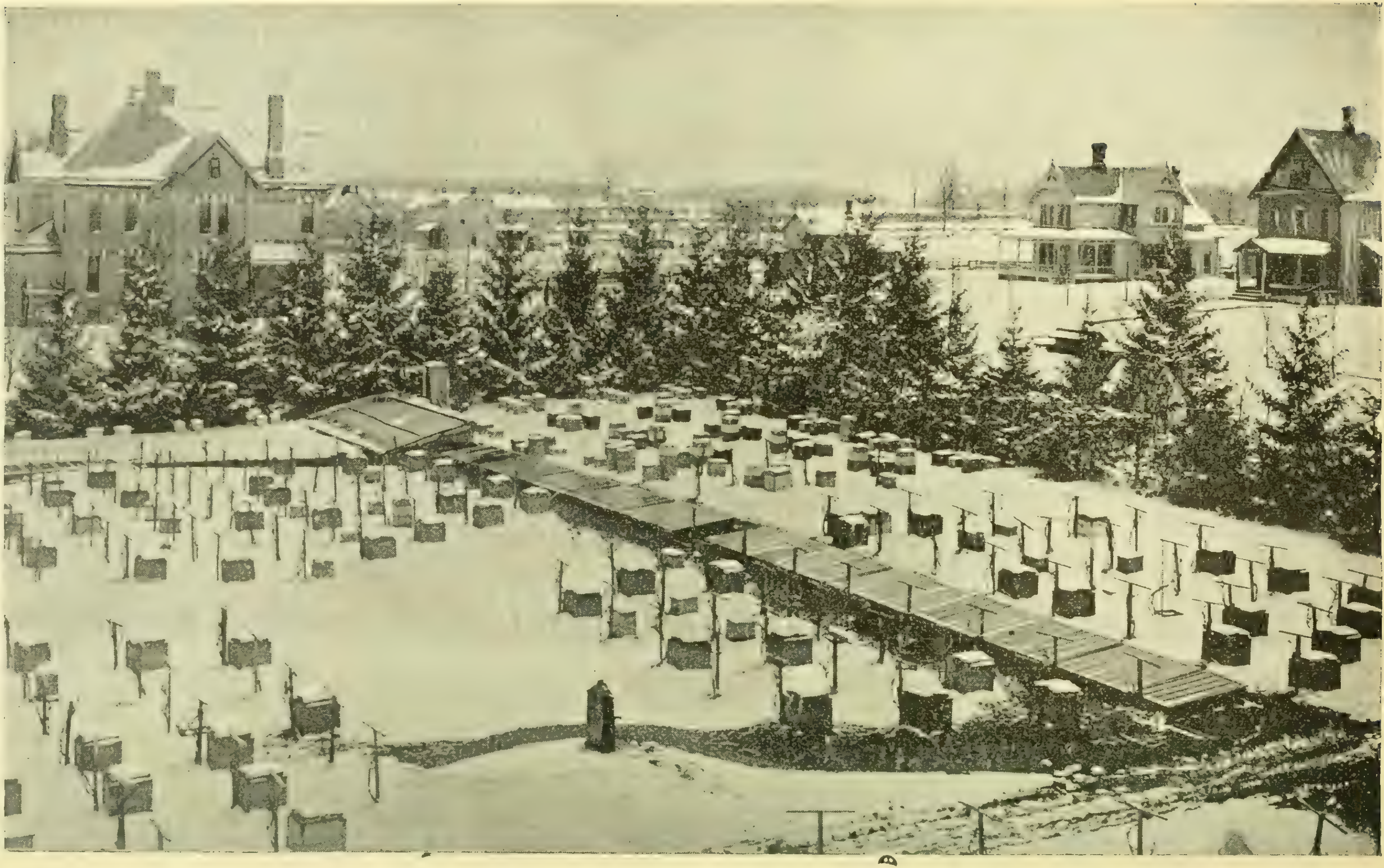
"I think, Manum, you will get 100 bushels per acre from this field."

"No, I hardly think so, Scott. I have set my figures at 75 bushels per acre. Well, here we are in the apiary, and we will first examine the new hives. Here they are, you see; I have 8 stands, or 16 colonies, that I am running on this Langdon non-swarming plan."



THE LANGDON-MANUM NON-SWARMER.

"Well, but I don't see any thing similar to Langdon's device. How do you manage to run



WINTER VIEW OF OUR OWN APIARY, GIVING ALSO A GLIMPSE OF A RANGE OF HOT-BEDS HEATED BY EXHAUST STEAM; SEE EDITORIAL, ALSO GARDENING.

the bees from one hive to the other, so as to work both colonies in one hive at will?"

"That is as simple as a turn of the hand, and I will explain it to you. Mr. Daggett has been waiting a long time for an explanation. He came here in June, and here it is the last of July, and I have had no time to explain the working of this hive before. The stand upon which the hives are placed is, as you see, long enough to accommodate two hives, with an entrance at each end, one for each hive, which admits the bees from the under side of the brood-chamber, precisely like the Bristol-hive entrance. The stand has a double bottom, with a ⅜ space between the two bottoms, and is so constructed that, without any entrance-slides, the bees can pass in at one end of stand and out at the other, passing between the two bottoms; or they can, if they choose, enter either hive they wish from this ⅜ passage. Now, then, you see I have the whole working force of these two colonies working in this left-hand hive, upon which there are two tiers of sections, or four Bristol clamps."

"How do you manage to force the bees from the right-hand hive into the left-hand one, and prevent their entering their own hive?" asks Mr. Daggett.

"I do that simply by the use of the tin slide you see standing up against the left-hand hive. This tin closes the under or main entrance entirely, forcing the returning bees, which belong to the right-hand hive, to pass on through between the two bottoms, and enter the left-hand hive through an entrance specially provided for them by the use of the wood slide, with a long slot in the middle, which rests here against the right-hand hive. The slot, however, in this slide is not exactly in the middle; as one side of this slide is narrower than the other, the narrow side is used when both colonies work in one hive, and the wide one is used when I wish to keep each colony separate. These slides and the entrances are so arranged that they work completely in uniting or separating the two colonies. You will observe that I have two escape holes with cone bee escapes over them, through which the bees can escape from the right hand hive, that may have been shut in by the closing of the main entrance. These escaping bees, when returning, naturally go to the main entrance; and, being cut off by the tin slide, are obliged to follow along and enter the left hand hive, thereby making that colony doubly strong. Then in five or six days I reverse the whole business by placing the sections on the right-hand hive and exchanging slides, when all the bees work in the right-hand hive, and in five or six days more I again exchange the slides and sections from one to the other, and so on through the season. It is necessary, of course, for the operator to keep a correct record of every hive in each apiary, so that none may be overlooked or forgotten, as that would make bad work, and cause the strong colony to swarm, and the light depopulated one to become so much reduced that it would be ruined entirely."

"Now, Manum, after one season's trial of this non-swarming principle, how do you like it? Can you recommend it to others?" asks Scott.

"Well, gentlemen, I hear the dinner-bell, and we will respond to that call; and after dinner we will continue this talk over the non-swarming method."

SWEET CLOVER.

HOW IT LOOSENS UP THE SOIL.

By G. J. Yoder.

As is well known, sweet clover is a valuable honey-plant, while some persons regard it as a bad weed; but with eleven summers' experience I have learned quite a little about it. In the first place, I sowed it for its honey qualities; but I soon found there was something else of value connected with it. I sowed it on poor heavy soil in the spring of 1882. The following year it was a boon to my bees, yielding abundance of honey. I had sown it near the public road, and many persons going by would stop to see the bees work on it, and expressed surprise. The roots penetrate deep into the hard subsoil, and make the land loose and friable, and, after the crop is cleared off, it is in fine condition to put to other crops.

We once, just as it was done blooming, turned it under and sowed it to buckwheat, thus getting two crops of bloom in one summer. The following spring we sowed it to oats, getting a fine crop, while at the same time the sweet clover volunteered, making a heavy growth by the 15th of Sept., standing about three feet high. Now was our time to try its qualities for hay, and, suiting the action to the thought, the mower was brought out, and in due time we had it in a stack, making about 1½ tons per acre. It was the sweetest-smelling hay that I have ever seen. In one instance I had to call the doctor one very dark night, and, as we came within a few rods of the haystack, the doctor stopped short and said, "What smells so wonderfully sweet?" On being told it was a stack of sweet-clover hay he was much surprised. It was actually so sweet that, every warm day during the winter, the bees would be flying about it. We fed it all out to our sheep, with corn fodder for a change, and I never had sheep do better. Horses will readily eat it, but cows do not care much for it.

WHERE SHOULD WE SOW SWEET CLOVER?

It will grow almost anywhere, even on very rocky hillsides and waste lands; but I prefer to sow it where I can keep control of it and get a crop of bloom and a crop of seed; then the next spring a crop of some kind, and in the fall a crop of hay, or to wheat in the fall, and in the next fall a crop of hay.

Every other year it reseeds itself; but if put to cultivated crops a few years it can all be killed out. I made a garden-spot on a sweet-clover patch where there were millions of seeds, and in two years it was all gone.

CUTTING AND THRASHING THE SEED.

With us it grows from four to eight feet high, thus making it almost impossible to get it into a thrasher or huller. We cut it with a self-rake reaper, then make a platform on a sixteen-foot hay-rack, placing it on a skid made of poles bolted together with cross-pieces; then hitch three horses to it, and pull it to the field. With two light poles about eight feet long, and just heavy enough for a man to handle, and two pitchforks, we are ready for business. Now fill your platform, not too full; and if the clover is very dry, a few good strokes will land the seed in the bottom of the platform. Now tumble out the refuse; drive up, put more on, and so on around the field. A little experience will show how it should be done. When all is thrashed off, run it through a huller and you have the Bokhara seed.

WILL THE BLOOM YIELD HONEY EVERY YEAR?

It seldom fails to yield enough to keep the bees out of mischief, and keep up brood-rearing; but we seldom get much surplus; for blooming, as it does, at a time when very little else is yielding honey, it would take a large area to give us thousands of pounds.

As to off years, we have them too in this as well as in other honey-producing plants; but only once for us in eleven years was there an entire failure; yet it bloomed profusely, but seldom a bee was seen on it, but thousands of large flies, bugs, and what not but bees.

I have just finished reading the three books lately received of you; namely, Potato, Onion, and Strawberry Culture. They are grand and sound, and to the point.

Garden City, Mo., Jan. 15.

[Your article is "sound, and to the point," and we hope many will read it."—Ed.]

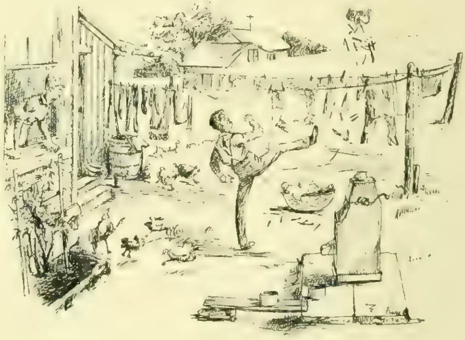
RAMBLE 105.

MARRIED LIFE IN CALIFORNIA.

There are doubtless many felicities in married life, and we meet their various phases as we ramble along. California is often noted for these, as we have often rehearsed; and while this State is, for some reason, noted for the number of divorces, there is also a marked attachment between man and wife that withstands all lesser breezes, and the sacred family circle is never broken. I have seen bee-keepers putting up stovepipes and putting down carpets and matting, and using not a swear word, while the wife has been indisposed, either real or imaginary. I have seen the husband on his knees, scrubbing the kitchen floor, or cooking the dinner, tending the baby, washing the clothes, and hanging them out, all as peaceably as a well-regulated Chinaman; and in all of my rambles among bee-men I have found not one divorced couple. There may be many, but they have not come under my observation.

The connubial relations are sometimes apparently strained, though there is no real anger. As an instance of this strained relation is the case of a young married couple of bee-keepers. Under very happy circumstances they had commenced housekeeping. Celeste was hard a work over the wash-tub, and John, not being very busy that Monday morning, kindly turned the wringer and filled the big clothes-basket. All went as merrily as a marriage-bell, when their heads came close together over the old wash-tub. There was a smack, an "oh my!" and a laugh. The grass was a little damp out along the clothes-line; and when the basket was full and the pin-basket brought, John offered to hang out the duds, as he expressed it, and proudly marched out with his load to the long line strung from pole to pole.

Pretty Celeste, all smiles, took herself to the nearest window overlooking the field of operations, and prepared to boss the job. Of course, John knew how to hang out clothes, or thought he did, for he had done the like service for his old mother, away back east, some of those cold frosty mornings. After a few words of badinage about his kindness in saving her little precious feet from getting wet, John made a grab at the basket and pulled out a towel and proceeded to hang it over the line midway of the towel.



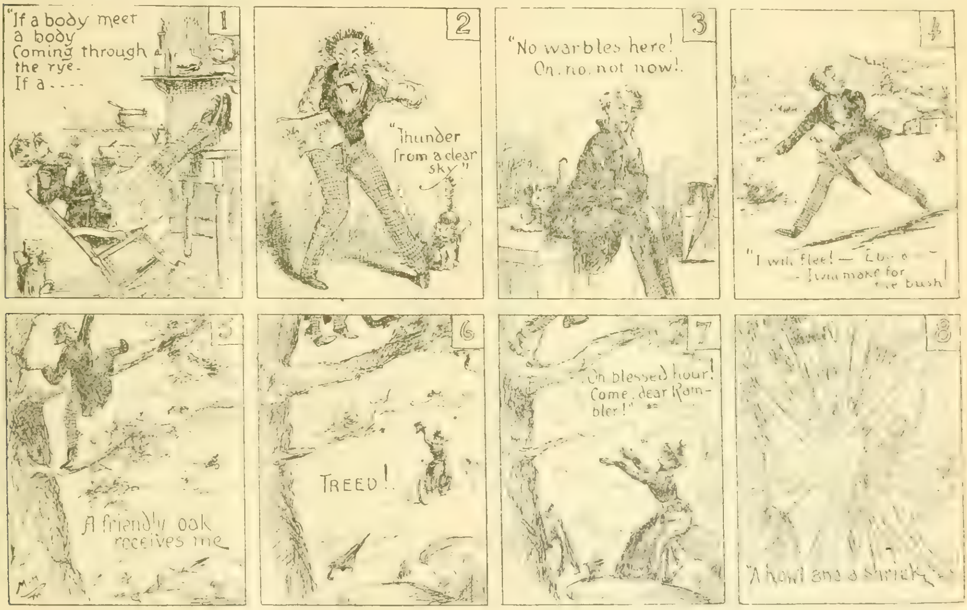
"There, John, that won't do," came from the window. "It won't dry in a dog's age that way. Put the end over about the length of your finger, and pin it there. That's right, my dear; it will dry quick. You see, John, there is as much sense necessary to hang up clothes properly as there is in boiling eggs."

John fished out some more towels and pillow-cases, and things moved along smoothly until a stocking was quickly swung over the line and pinned by the toe.

"There, John, don't you know better than to put stockings on the line that way? You craunch the toes of your stockings through quick enough with your big toe-nails without squeezing a clothes-pin down on it. Hang it t'other end up, so's the wind will blow through it. There! don't you see what an improvement?"

John began to look a little sour, but said not a word. The stockings, both long and short, were soon exhausted, and a big sheet was next hauled over the line. John proceeded to fasten this just as he did the towels; but Celeste, leaning further out of the window, shouted, "Why, John, hang that over by the middle. Don't you know better than to hang the sheet that way? The edge will brush the ground, and get dirty."

"Say, now," says John, beginning to warm up for an argument, "it's a poor rule that won't work both ways. Sheets must be hung just as towels are, so's the wind will blow through them and dry them quick. Don't you see?"



After a considerable debate touched with acidity, the sheets were hung to suit the woman in the window. John's shirt came next, and was put with the shoulders over the line.

"That won't do, John. Oh my! (with a pout) I'll have to hang up the clothes after all. A man does things so bungling. John (peremptory), hang that shirt up by one flap so's the wind will blow through it. There! that's the way."

John fished up another long white garment and looked at it doubtingly. His face was flushed. He was apparently mad. It needed but one more spark to cause an explosion.

"There, John, don't hang that up that way."

Celeste was leaning further out of the window. Don't tear those ruffles with your big hands; that's my—he-he-he—John, that's my—he-he-he—hang it up on the gore, John."

"Gore and be darned!" shouted John. "You can't think of any thing else, so you holler gore—he-he-he (spitefully). There, take yer tarnal old washing—he-he-he—and yer pin-basket—he-he-he," giving the latter a kick that sent it with the contents flying over the clothes-line; and John strode off into the fields, where it is supposed he cooled off.

Not wishing to disturb the pleasant reflections of either party I rambled away through the sage brush to my cabin, where I reflected happily upon the free and easy life of a bachelor bee-keeper. There was no cause for disagreement in my cabin. I do not smoke, but I laid off my coat, put my thumbs in the armholes of my vest, leaned back in my chair with my feet on the table, and imagined the rings of smoke were rising over my head like so many crowns, just as you read they do in the story-books. I felt so contented with all the world, so independent and happy, that I just made the welkin ring as I sang:

If a body meet a body,
Need a body si-i-i-i?
If a body kiss a body,
Need a body cri-i-i-i?

I can't imagine, though, what made me sing those words—a sort of premonition, I suppose. I really felt as though I was too happy to have the feeling "continner," as Dr. Jake Smith would say.

Once before during the easy season I felt quite elevated in spirits, and went out to have a gallop over the plain with Vix; but Vix had elevated spirits also. She elevated her back several times; result, I returned to my cabin a dusty, sorrowful rambler. I felt this time as though something was going to happen, and, sure enough, it came like a clap of thunder from a clear sky. It was in the shape of that open letter to Rambler, on page 181 of GLEANINGS. It was a great shock to my nervous system, to drop from such delectable heights to such a sad condition; and I wish right here to reprove your artist for picturing my happy state after reading that Morse letter. The happy state and songs were all before. Afterward I was sad, and there were no warbles in my lungs. To escape the visitation was my study night and day, and it was with joy I had a chance to go 60 miles from my usual haunts into a wild portion of San Diego County. Oak Grove Apiary, on the head-waters of the San Luis Rey River had to be moved, and surely no Eugenia would follow me into that sylvan seclusion. But I reckoned falsely; for, while laboring at the bees in my fancied security, a robust form, like unto what I had pictured Eugenia to be, was rapidly whirling toward the apiary, on a bicycle. Had it been Jake Smith, or some other musty old fellow, I should have been calm and collected; but seeing it was the one who bore the name of Eugenia, and under all of the delicate surrounding circumstances, please give me a little honor if I confess that I resolved to flee. But to flee from an expert bicycler, such as Eugenia proved to be, was beyond my power, and a friendly oak-tree received me graciously upon one of its generous limbs. The cycle had to halt. Thank fortune, it could not climb; but the Eugenia form sat itself down upon a stone and gathered from the pocket an opera-glass, and commenced the siege. Eugenia was not much acquainted with the country, and I had a gleam of satisfaction in knowing that, ere the shades of night had deepened, the form would leave that stone. With a tremulous voice Eugenia cried:

"O cruel Rambler! long have I yearned for you; and now after long journeys, night and day, for you thus to flee from me and treat me so!"

"Aye!" said I, "yearn on and on; this heart of mine is as hard as adamant. Long years have passed since woman's wiles have turned one drop of blood more scarlet than the rest. Go, bold being, to your home, and let me rest."

"Nay, Rambler mine, the mission to take the heart so hard, and face so stern, and mold like unto an angel's, come from that leafy perch among the boughs, and let these hands, this voice, and these tears, minister to your comfort."

"O Eugenia! knowest thou not that it is the sphere of man to woo, and not yours? Knowest thou not that, where such a one as you so forgets place and station, and would to me a-wooing come, your words, your tears, only steel the heart the harder toward your kind? Away, ere the shades of night and beasts and creeping things come in these lonely wilds to startle and destroy."

"O Rambler! knowest thou not that woman's sphere enlarges! To vote, to woo, to legislate, is the fashion of the hour. O Rambler! sit not like some gnome in the gathering darkness; to my petition wilt thou listen? Wilt thou turn one sympathetic glance? Wilt thou?"

"No, no, Eugenia; though your words are fair, 'tis not for such as me to wilt unseemly. Would it be for me to wilt? Should I wilt forth, I'd go to scorn. No, your glances, your words, your tears, are not enough to make me wilt. Away! I'll fly to sterner mountains, rocks, caves, ruin, desolation; among these hardened scenes I'll never wilt."

The stars were out; there was a crackling in the brush—a howl, a shriek. RAMBLER.

(*Concluded in our next.*)

THE HONEY-MARKET IN SOUTHERN CALIFORNIA.

By Prof. A. J. Cook.

The third subject which elicited great interest at the State Association was that of marketing the honey product. It was felt that, with such a sure production, such anomalous yields, and such excellent honey, the present haphazard method of getting the product to market was away behind the times; that it should be speedily superseded by some systematic plan in which all should be interested, and should help to carry out. The Citrus Fruit Association, or Exchange, of Southern California, was referred to, and the subject was referred to the Executive Committee, with the hope that, after a complete investigation, a plan might be formulated that would secure the objects desired. At the monthly meeting of the Los Angeles County Association, held last Saturday, the subject was again debated, and the writer was appointed to investigate the matter as fully as his time would permit.

There is no doubt that organized union in all such matters is very desirable. It is equally evident that the great success of commercial, manufacturing, and such other enterprises as railroads, etc., is largely due to the fact that they can and do work together. It is just as patent that the farmer has been kept back by his isolation, which stood in the way of such coöperation. The difficulty to-day rests in the fact that it is almost impossible to secure unanimity in any proposed scheme, no matter how wise or how well planned. The inexperience, too, of such producers has not fitted them to plan the most wisely, and so it is exceedingly important that, in making any move toward coöperation, great caution be exercised, or false steps will be taken that will imperil the whole undertaking.

Southern California has united in a scheme for marketing their citrus fruits. They have organized, have officers who look after the markets, and all producers who join the Union are bound morally and legally not to sell fruit except through the exchange. Each local association has a manager who determines the amount of fruit in his province, and he takes charge of all shipping, keeping track of the progress of the ripening of the fruit, informing all in his district how much to bring to load a car. That some such scheme could create markets that no individual effort could secure; could arrange for grading in a way that individuals would not practice; could arrange terms with railroads that could be secured in no other way, seems to go without saying. That wise plans would always be made, especially to begin with, or that wise administration would always be secured; wise and honest men always be appointed to office, and fruit really marketed, and not merely consigned before shipping, is too much to hope; yet this seems to be a move in the right direction, and we can not but earnestly wish it success. Of course, it is vastly important that all unite, and remain loyal to the plan. Can this be secured? I am optimistic enough to hope much from the scheme.

Now as to the honey. Do bee-keepers wish such an organization? Will they unite and work together? If they organize, shall the effort be made to unite with the fruit exchange, or work separately? Union with the fruitmen would tend to bring the two classes into closer harmony, and would save much expense. It is a plan well worthy of agitation, and nowhere in the world could it be tried with more hope and prospect of success than right here in Southern California. The bee-keepers read, are intelligent, are well organized, and, I believe, could and would work together. I should be glad to hear from our best men on the subject.

MOTHS AND POLLENIZATION.

The note in the last GLEANINGS (Mar. 1) regarding moths carrying pollen is of much interest. There is a large family of moths known as *Noctuidæ*, or night-flyers, that have long tongues, and do sip sweets from flowers. The cut-worm moths of the genera *Agrotis Hadena* and *Noctua* are specially wide awake in this direction. We catch many of these moths for our cabinets by what we call sugaring. We spread on the trees a preparation of syrup and vinegar, or stale beer. This attracts the moths which collect on it soon after sunset in great numbers, and so the entomologist finds this an easy way to increase his number of specimens of the *Noctuidæ*. The best time to sugar for such moths is in August and September; but every one who has worked in the maple-sugar bush knows that these moths are abroad even in early March. I have often seen them by scores in the sap in March, before we covered our buckets. They were attracted by the sweets, and were drowned.

As I said in the article of last week, it is very likely that, before we had large orchards, when the fruit-trees were very few and scattering (and we all know that such was the case in the wild forests), there were enough indigenous insects to carry the pollen. I well remember when the few wild-plum trees were in the woods of my early Michigan home. In those days these moths and the few wild bees were often quite enough, I dare say, to secure good fruitage.

Claremont, Cal., Mar. 10.

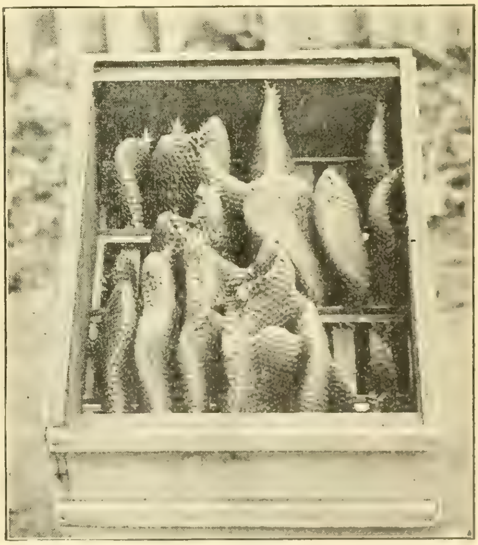
A STRANGE FREAK IN COMB-BUILDING BY BEES.

BURR-COMBS WITH A VENGEANCE.

By L. J. Templin.

I send by to-day's mail a picture of a peculiar product in the way of comb-building. Having never seen any thing of the kind, we thought it might be of interest to the readers of GLEANINGS to see an illustration of it. The circumstances under which this comb was built were as follows:

Mr. Geo. M. Deibert, son-in-law of the writer, residing in Florence, Colo., drove two medium colonies into a hive of the capacity of a ten-frame Langstroth hive supplied only with foundation starters. To give plenty of ventilation he placed an empty super on the hive, and on it the flat cover. He intended to remove the super in a few days or replace it with one filled with sections. Being suddenly notified to join a party to go to the World's Fair, Mr. Deibert



left home without having given any further attention to his bees. After an absence of about three weeks, on his return home he found his united colonies had filled the hive with comb and honey. They had then begun on top of the frames and about the T tins of the super, and built combs upward, as shown in the picture. Some of these combs are about three inches thick at the base, and ascend in pyramid form to within a bee-space of the cover, but in no case did they touch the cover. To old bee-men this may be no curiosity, but to us boys it is quite new.

Canon City, Colorado.

[Here is an interesting case of how the bees will sometimes build combs *upward*. As a general rule, the work is commenced at the top and gradually extended *downward*. In the case before us burr-combs evidently were started, and as the honey season progressed these same burr-combs elaborated into good-sized combs. In time they would have been extended to the cover.—Ed.]

HEDDON'S REPLY,

CONCERNING THE ANALYSES OF HIS HONEY.

Dear Mr. Root:—As a brother bee-keeper, brother-publisher, and brother-man, standing under the law which certainly should not be more charitable than social and commercial judgment, and being always innocent until proven guilty, I crave space at your hand to make some statements and arguments in reference to the damaging matter which has appeared from time to time in your journal, culminating in the very serious charges implied, although not positively preferred, against me on page 240 of your last issue.

Taking up the matter on that page, consecutively, I desire to first call your attention to the fact that there is an element by far too prevalent in human nature, prompting a desire to injure our fellow-men. You are not forgetful (if you are I am not) that I have before been called foolish for advocating natural vs. artificial swarming; that honey would never become a staple product, but that we must look on it as a luxury for all time, and that we could make its production pay as a luxury as easily as or easier than as a staple; that the "Simplicity" hive of your devising was not as good a hive as my modification of the Langstroth; that close-fitting frames were best, when properly adjusted; that the consumption of pollen was the immediate cause of bee-diarrhea; that a bee-keepers' union for the defense of our inalienable rights would be a virtuous and effective organization, etc. All the above, however, has proven true, and most of it is now admitted; but this is not all: I have been called selfish and criminal for complying with the laws of my country in procuring a patent to defend my right to the results of my labor. *These* "reports have come to me." That I am wicked, unwise, and foolish, is nothing new. You state that "complaints kept coming." I can not imagine whom they came from, when nineteen-twentieths of my customers (as what I inclose indicates, and I will send you the original manuscript to absolutely prove it, if you will publish it) praised the honey I shipped them, to the highest standard. I here and now call upon every person who has purchased honey of me during the last two years in question, or at any other time, for that matter, to send to this journal (Gleanings) for publication, a statement of their opinion as to its purity and quality, and why that opinion, and what satisfaction said honey gave to their customers, to the best of their knowledge. The list of my bee-keeper customers, which includes nearly every one of them, is as follows: Joseph Johantges, J. G. Lehde, C. P. Call, Jos. Bargehr, E. Frost, J. W. Chapin, W. Vermillion, F. M. VanEtten, O. Rudd, Jacob Shumm, Chas. E. Cook, Dwight E. Squire, W. Z. Hutchinson, Rev. C. Franke, Jos. K. Shultz, John Sunderman, F. R. Davenport, Desenberg & Schuster, Walter Jenman, L. B. Bell, Geo. Schook, Mary A. Bucklin, Jos. Myers, Mrs. F. M. VanFleet, James A. Minnich, H. Sparks, and A. C. Masson.

I believe that the above are all of my 1893 customers. If there are any more let them report. Following are the names of nearly all of my new customers of 1894. You will understand that most of my 1893 crop was also sold to the persons named above:

J. S. Yoder, John Senff, Fred Underwood, Thomas H. Mills, O. H. Lintner, W. T. J. Farrington, H. M. Hampton, W. T. Zink. But in the list of 1893 are two other names I wish to specially refer to. One is F. Minnich, North Freedom, Wis. He said my honey was not as good as his own, and didn't give good satisfaction, and then added the following: "You got a terrible blowing-up at our State convention, in regard to sugar honey, which served you just right." Here it will be seen that I lost a customer who discovered inferior quality in my honey because of what Prof. Cook said and wrote, and what, Mr. Minnich had been informed, by "reports coming in," was said by me. The other one is Geo. G. Willard, who was arrested, as you state on page 240. Under date of June 2, 1893. Mr. Willard wrote me as follows, in response to my solicitation for his testimonial: "Some of your honey has given satisfaction, some not. I have had better. Some of the late-made honey was strong and poor." Mr. Willard had been one of my best customers, and I was surprised at his response to my solicitation for his testimony. However, on the 5th of the following August he ordered three 60-lb. cans, and, on the 24th of the same month, five more 60 lb. cans; then on the 15th of the following November, 10 cans more, every drop of which was strictly pure, and 13 cans of which have been returned and re-remitted for, less the freight. These 13 cans are now in my honey-house, just as they arrived from Mr. Willard, and the honey is candied solid.[*] This is all I know about the Willard honey.

Now, who is the well-known bee-keeper who purchased the two cans of honey and sent the affidavit? When at the World's Fair last fall I called on Thos. G. Newman, Manager of the Bee-keepers' Union. While there he showed me two bottles of honey said to be adulterated, and taken from one of my cans. Now, I do not pretend to be able to detect glucose in honey, by any method whatever; but the sample shown by Mr. Newman gave me the impression of being pure basswood honey that had been taken from the hives before it should have been, and very "green," or else had been watered. You are all aware that no two honeys taste alike. Honey from different blossoms differs much in taste and appearance, and most of you are likely aware of the fact that honey from the same variety of blossoms, in different localities, often not more than 40 miles apart, tastes and often appears very different. Those two samples never came from my apiary, and I afterward gained some evidence that they were sent to Manager Newman by W. D. Soper, of Jackson, Michigan, who purchased three cans of me, Feb. 13, 1893, of my 1892 crop. Page 240 states that Mr. Willard was fined $25.00 and costs—a total of $64.85. Mr. Willard wrote me, in a letter dated Dec. 6, that the total cost was $70.85; and in another letter, dated Dec. 18 (both in 1893), the fine and costs was $73.85. The fine being $25.00, "costs" come pretty high, making arrests a very good business in Ohio. Mr. Willard was adjudged guilty by the court, solely upon the chemical-analysis report of Prof. Albert W. Smith.[†] You didn't state this in your editorial, nor did you state the fact that it was upon the evidence of another chemical analysis by this same Prof. Smith that Mr. Jankovsky was damaged in reputation, and by the law of the State of Ohio compelled to pay a heavy tribute to the pockets of officials; but on the previous page you state practically the same things regarding Mr. Jankovsky.

Before closing this article I will state that I have shipped no impure honey to Mr. Willard nor any other man, during 1893 and 1894. If I had, I would not have received the testimonials I did. When you say that my "utterances on the glucose question give coloring to the statements of the different chemists," you do not compliment the science of chemistry, and yet, in my opinion, you speak logically of the science, but illogically and wrongfully of me. I have never said one word to lend you reason for such a statement. Whenever I have written or spoken upon the glucose-honey-mixture question I have in every instance stated that no bee-keeper could *afford* to adulterate, and I didn't believe bee-keepers *were* adulterating. I have said that glucose was not poison nor injurious to the human system; that 50 lbs. of it is consumed annually under the name of "golden drips," and other syrups, to every pound of honey eaten. I have also said that, while it might be to our interests to discourage its consumption in all forms, in all of which it is a competitor to our product, to go to complaining of bee-keepers, and making arrests, or doing or publishing any thing sensational that will get into and go the rounds of newspapers, will damage us materially. I have said these things, and I say them again, because I believe them true; and, further, I believe that a statement of these truths, if heeded, will be of immense value to our pursuit. You used the term "cheap honey." I have never sold honey at a price that could be called "cheap," except for an article superior to nearly all of the extracted honey on the market. I inclose you my price list, which quotes the lowest figures I have ever sold at; and I have a late circular before me, from S. T. Fish & Co., quoting extracted honey at 4½ cents. Prof. Wiley, of Washington, whom you quote, it must not be forgotten, was for several years *justly* called a liar, and destroyer of our business, which impeaches his testimony, or else he was for years worse abused than I am at this day by bee-journals.

You state that it seems to be "demanded of you that the bee-keepers of the land be notified of these things." Now, Bro. Root, how do you think my friends and myself, who positively know the truth, couple that statement with the one that you "practice and preach that kind of charity that is kind and suffereth long"? Admitting that you believe the truth of what you have published, even if it *were* true, I should like to hear your explanation of how and what good it will do the bee-keepers of the land to be "notified of these things." I can not imagine. If I were told that any prominent bee-keeper who had succeeded in the business, making it buy him $10,000 worth of other property, besides increasing itself—that this bee-keeper has always paid every debt promptly; that his word was as good as a bank-draft in the commercial world; that he had been honored with the highest office in the gift of the people of his municipality; that he had the intelligence to invent implements and methods that were praised by the brightest of his class; was doing something that was both "foolish" and criminal, I wouldn't believe he was doing it as long as there was a shadow of doubt; and when there was not, I should be compelled to doubt the foolishness and criminality of the act, and be tempted to try it myself; wouldn't you? But what am I to do? If the science of chemistry is reliable, I can produce nothing but adulterated honey in this locality, and, consequently, must quit the business. If I have wronged you I have wronged myself more by losing my temper over the inconsistent and damaging paragraphs which have been printed concerning me, all of which I knew were not true, and that may be the reason you complain of my not giving you "satisfactory answers." I wish to ask you why you didn't send me advance proofs of this printed matter on page 240, and in justice publish this reply in connection therewith.

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[*] Candying is no proof of purity; see p. 61. Ed.

[†] Yes; but the analysis was confirmed by Prof. Hobbs. Ed.

You have previously had my "honey testimonials." I wish you would take the original manuscript and publish it. You have also seen my "price list."

"Now I have given the facts for just what they are worth, and the reader may draw his own conclusions." JAMES HEDDON.

Dowagiac, Mich., Mar. 18.

[We are very glad indeed, Mr. Heddon, to see you appeal to the public at large who have purchased honey of you before, that gave satisfaction. Here is a postal just put into my hands:

> *A. I. Root:*—It doesn't seem as though you are going to stop that cry of adulteration. If you had, I should want to stop GLEANINGS. You surely hit the nail on the head in the Heddon honey. I bought two cases of him several years ago, and I then thought it was *not honey*. I sent a sample to you by mail, but it was broken in transit.
>
> Atherton, Ind., March 20. G. F. AYRES.

You say you shipped no impure honey to Mr. Willard, nor to any other man, during 1893 and '4. How about what you shipped *before* '93 and '94? And furthermore I do not see that you state clearly that you *never* adulterated.

If it will damage bee-keepers materially by making arrests, or publishing the names of those selling glucose for honey, what in the world are bee-keepers to do? I am aware that S. T. Fish & Co., and other commission men, have offered extracted honey in quantities at a low figure; but so far as I know, no one has advertised honey in a retail way as cheap as or cheaper than you have done, *for the same grade and source.*

Had you been present at some of the recent national conventions, especially the one held in Washington and that held during the World's Fair, in Chicago, you would have seen Prof. Wiley not only warmly welcomed, but held in very high esteem by the bee-keepers of our land. Prof. Wiley may have been unwise in the past, but he surely is the friend of all bee-keepers now.

You ask what good it will do the bee-keepers of our land to be notified of these things. It seems to me the answer is self-evident. See contents of postal above. If a bee-keeper and honey-producer has been guilty of adulterating his honey with glucose, I do not think he will follow it very long after he has been publicly exposed through the journals. This policy will help to protect bee-keepers against this glucose competition.

The two cans of honey that are now in our possession have a printed tag attached to them, reading just like this, and just like other tags from you direct:

FROM
JAMES HEDDON,
DEALER IN
BEE-KEEPERS' SUPPLIES,
HONEY AND BEES.
DOWAGIAC, - MICH.

Why didn't we send you an advance proof? You yourself answer the question. We wrote to you a year ago, once or twice, telling you of the evidence that we then had in our possession, and you wrote letters to us, and to other parties, wherein, as usual, you "lose your temper," etc. Yes, indeed, we have a letter from you to another party wherein you refer to Prof. Cook and ourselves as "fools," "silly gang," "simpletons." In a recent communication to us you accuse us of trying to rob you of your rights, "of using the blackmail system," etc. We do not see how you could expect advance proofs under such circumstances.

If the chemists of our land are ignorant and vicious, we should like to let judges of honey, and honey-producers, taste of the stuff in those cans which came to us from you through a third party as pure honey. We know that honey from different localities varies, and that late fall honey is often poor in any locality; but out of the thousands of samples that have been submitted to us for inspection, we never yet tasted any honey gathered by the bees, having such an unmistakable flavor of corn syrup as this. There is enough to it to go around, and it speaks for itself plainer than words. A. I. R.

Mr. Heddon refers to the honey of Mr. Jankovsky, from S T. Fish & Co., that was pronounced by Prof. Smith to be adulterated, but which, by Prof. Spencer, on its second analysis, was declared to be pure. Mr. Heddon probably failed to observe that Prof. Smith pronounced the honey adulterated with *sugar syrup*, and showed only 15 per cent. We have before stated that we believe it is generally admitted by the best chemists that it is not always possible to be certain regarding the small per cents of *sugar* adulterations, especially if the syrup has passed through the organism of the bee; but when we come to the matter of *glucose* adulterations, we are not aware that the chemists have ever made any mistake. Glucose is very easily detected, and its presence can be known to a certainty. On page 688, Sept. 15th No., 1892, GLEANINGS, you will remember Prof. Cook reported having sent to Prof. Wiley and some others of the best chemists of the country 50 samples—some adulterated with glucose, some with sugar syrup, and some not adulterated at all, but all known to Prof. Cook by number, and the exact amount of adulteration, if any, in each of the samples. When the reports of the analyses were received, it was shown that each of the chemists recognized unerringly the glucosed samples and most of the sugar syrup samples. It seems to us that this test ought to be pretty conclusive. Mr. H. may refer to the case of Mr. Chas. F. Muth, whom everybody knows to be opposed to glucosed adulterations, but whose honey was pronounced adulterated with glucose, by one of Prof. Wiley's associates. But it has been conclusively shown that these glucosed samples, alleged to have come from Mr. Muth, bore counterfeit labels; and we have not a doubt in our own mind that a man who would forge a label would not hesitate to adulterate.*

If Mr. Heddon has not adulterated, his recent utterances defending the practice, objecting to the change in the constitution of the Bee-keepers' Union, and saying, among other things, that "all the Bee-keepers' Unions this side of fairy-land could not stop one little honey-producer from adulterating," and trying to make us believe that, apparently for the purpose of making glucose-mixers escape detection, is about as reprehensible as to adulterate.

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* Since writing this our attention has been called to the fact that Mr. Muth did send Prof. Wiley some of his honey—honey of undoubted purity—and that it was by him pronounced "probably pure." This would indicate that at that time there was an element of uncertainty; but since then the science of chemistry has made great advances; and, so far as glucose is concerned we think there is no uncertainty

Referring to the next to the last paragraph, we have only to say that the report was received; but the testimonials, instead of having names and addresses, were simply designated by number, and, as such, they have no value; and even in the article you give names but no addresses. If you will furnish the original manuscripts we will either publish them or refer to them as genuine.] E. R. R.

CALIFORNIA ECHOES.

By Rambler.

Several bee-keepers at the California State Convention said they had seen bees carry wax in their pollen-baskets.

There were several bald-headed bee-keepers at the convention. I noted that, in every instance, they were married men.

Bachelor bee-keepers must all be adepts at cooking, from the many cooking-recipes I get from them. I extend a bushel of thanks for the kindly aid.

Honey sometimes ferments and gets sour. It must be very unripe, though, to have the whole mass ferment. The sour surface can, many times, be poured off when the greater part in the bottom of the can is good honey.

The more some people get stung, the more dangerous the effect; but with the majority the effect goes the other way, and the effect becomes harmless. I recently found a bee-keeper who said it swelled on him only during dog-days.

Whitewash makes a very good coating for bee-hives, and, if mixed according to the Mexican plan, it will last three or four years. The above plan is to mix with the whitewash a mucilaginous substance from a certain species of cactus. This applied to their adobe houses lasts many years.

It has been ascertained that the size of native Californians is an improvement over the original stock. The length of life is also prolonged. It is attributed to the mixing of the blood of many races, and the purity of the air breathed. The same will perhaps be the result on animals and bees.

There is still some discussion in relation to 8 or 10 frame hives. The comb honey man generally prefers the 8 frame, while the extracted man prefers the 10-frame. The way to get a uniform all-purpose hive that can be expanded and contracted is to use the shallow brood-chamber, making it a 10-frame chamber.

That little matter of shipping queens to Inyo Co., Cal., has another item of difficulty in the fact that the man wants *virgin* queens, and virgin queens are not so hardy to ship as fertile queens; in fact, I don't believe they are as hardy as a worker-bee. The shipment has to go a long roundabout way, and through a wintry belt of our climate. That queen-breeders may try their hands at this difficult problem, I will give the address of the gentleman who wants the queens in April. It is H. Trickey, Bishops, Inyo Co., Cal.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

SMOKING BEES WHILE MOVING THEM.

Question.—Don't you think it would be a good idea to give some smoke occasionally on the road, when moving bees, to keep them quiet? Would it not help to keep them from melting the combs? I had several melt last year while moving a distance of four miles. I expect to move more this year.

Answer.—If I am correct, combs melt down, while moving bees, only from the heat they create in their confined condition; and if this is so, the only thing which will overcome the difficulty is ventilation sufficient to allow this heat to pass out of the hive. I do not know that smoke has any effect in keeping bees quiet, only so far as flying out and stinging is concerned. When bees are frightened in any way, either by smoke, moving, or otherwise, they fill themselves with honey, and, when thus filled, they are not inclined to fly or sting, but they are inclined to run off their combs on foot, so that they may get away from their combs, seeming to realize that, unless they do go off the combs, they will melt down and be obliged to disgorge over the combs and themselves the honey taken, when a general ferment takes place, and the whole colony becomes extinct by stickiness and literal suffocation from heat and moisture. Smoke can not possibly be any remedy for this trouble; for, the more smoke used, the sooner suffocation would naturally take place. But plenty of ventilation allows the heat, created by the bees in their efforts to get off their combs, to escape from the hive, and thus we not only allow the heat to escape, but quiet the bees as well, as each bee can breathe free and easy, so that there is no danger of suffocation. Bees can be moved a few miles in a cool or cold day, in early spring, when not very strong in numbers, without any precaution more than closing the entrance, so that the inside of the hive is entirely dark, and I have moved bees from two to three miles in this way on cool days in June, when the bees were nearly strong enough to swarm; but I would advise no one to undertake it unless using a spring wagon and much caution so as not to arouse the bees in loading them. The only proper way is to have a rim fitting the top of the hive, three inches deep, having wire cloth on one side of it, which can be quickly fastened to the top of the hive, wire-cloth side up. Remove the covering to the top of the hive; adjust thi rim, and close the entrance to the hive bee-tight, and you will need to take no other precaution; for, let the bees be handled as roughly as they may, consistent with not breaking down the combs, there will then be no danger of the melting of the combs, as the whole colony can move off their combs into this rim and keep cool through the ample ventilation provided by the large surface of wire cloth covering them. Some seem to think that the entrance to the hive should also be covered with wire cloth; but from the experience I have had in keeping bees confined when moving them, and otherwise, I think there is a less loss of individual bees by having no light enter the hive save at the top, where the bees can crawl up and cluster. If the entrance is covered with wire cloth, a certain number of bees seem to consider it their duty to try to open that entrance, and so struggle and bite away at the obstruction till they wear themselves out, and die from exhaustion.

SUPERSEDING QUEENS.

Question.—In your book you speak of finding a colony about to supersede their queen, and then keeping them raising queens for you as long as the queen, about to be superseded, lived. The question I should like to ask is this: How do you know, or how can you tell, when a colony is about to supersede its queen?

Answer.—From an experience covering a period of 25 years, I think I can safely say that bees never build queen-cells to a state of perfection great enough to be supplied with eggs or larvæ unless they expect to swarm or supersede their queen. To be sure, they will start embryo queen-cells, or "acorn-cups," as some call them, all along during the season of the year when they can fly from the hive, but none of these are carried or built out further toward perfect queen-cells, by way of lengthening out and drawing the mouth of them down to the size in which we find eggs and larvæ in them, unless the bees are either calculating to swarm or to supersede their queen. So when you find lengthened-out queen-cells, you can rest assured you will find either eggs or larvæ in them; and when you find such out of the swarming season you may know that the bees are about to supersede their queen. Now, when finding such lengthened-out cells containing eggs or larvæ you may always know that such a colony will save and rear all the larvæ (unless injured in transferring) into fine queens you may give them in prepared cells, as I have given in my book, and all queens so reared will prove to be the very best queens that you can possibly raise under any condition, or by any of the known plans. No matter whether the colony intends to swarm or to supersede its queen. There is this difference however: If the colony swarms, that puts a stop to its rearing queens for you; but if it intends to supersede its queen it will build queen-cells right along for you as long as the old queen lives. But you must not let them hatch a queen, but keep the queen-cells taken out, before any hatch, all the while; for if a young queen is allowed to hatch, the bees may let her kill the old queen or do it themselves, when they will build no more cells.

FOUL BROOD SPREADING.

Question.—If a hive is attacked with foul brood, how long a time will it require for the combs to become one-half or more affected?

Answer.—That depends very much upon the time of year, and upon how much foul-broody honey was taken into the hive when the disease was started. If one of my colonies was to rob out a diseased colony, bringing from 10 to 15 pounds of honey from it during the month of April, I should expect that said colony would have cells of diseased and dead larvæ throughout all the brood by the middle of July, to the amount of one-half or more of the cells containing brood; but of course the dead and live brood would be all mixed up to a greater or less extent. If a few bee-loads of honey only were taken, and this during September, I should not expect the brood to present the above appearance before the next August, and possibly not till the spring of the second year.

SECTIONS CARRYING FOUL BROOD.

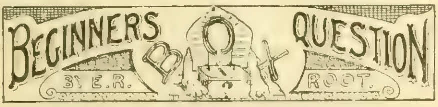
Question.—Would there be danger of communicating foul brood to a healthy colony by using over it the crates and sections which had been used the previous season on a diseased colony (the combs in them containing no honey), provided the crates and sections were scraped, and wiped with a dry cloth?

Answer.—This is something I never tried, and, from all the experience had with foul brood during the early seventies, and knowing what foul brood in the apiary means, I would say that I should not want to try such an experiment, for the risk would be too great. However, if I had many such crates of sections I think I would do this: I would take one or two colonies away from all other bees, three or four miles, and use these crates on them, keeping the remaining crates where no bees could gather propolis from them, and, after two years' test, if no harm resulted to these colonies, I should consider it safe to use the rest anywhere.

FEEDING FLOUR TO BEES.

In early spring, when the plant-world has not yet commenced to furnish pollen, flour can be given to the bees as a substitute. As flour as well as pollen promotes the rearing of brood, the use of it is to be commended to bee-keepers; and especially should those bee-men use it who live in regions where early spring is not the rule. Last spring I made a new trial of feeding flour in the open air, and it worked well. I filled a comb-box half full of flour, laid over it a sieve having meshes of the right size to exclude drones, and placed the same in the vicinity of a hive, slightly raised up. The bees took the flour through the sieve with far more convenience, and quicker, than out of old comb. No particles of flour were left remaining; whereas, by the methods used before that time, the flour became somewhat granulated, so that the bees could not carry it out. Wheat flour works the best. Even several days after the pollen began to come abundantly, the flour was eagerly taken by the bees. The sieve should fit in the box in such a manner that it can be pushed down as fast as the flour diminishes in volume. It is best not to select too small a box, for the pressure of the bees is generally great.

Medina, O., Mar. 19. KARL R. MATHEY.



BEGINNER'S QUESTION

BY E. R. ROOT.

C. C. S., of Ark., asks how to move an apiary a quarter of a mile without having the bees go back to their old stand. *Ans.*—We would refer you to the article by G. M. Doolittle on p. 235 of our last issue.

J. S. L., of N. Y., has from four to six frames of bees, brood, and honey, in an eight-frame hive, and would like to know whether he should put in the rest of the eight frames. *Ans.*—Only as fast as the bees require them for room in which to cluster.

A. M., of O., inquires whether it is necessary to wire shallow or half-depth frames for extracting. *Ans.*—We would advise putting in two wires, first to fasten the foundation centrally in the frames, and, second, to prevent any liability of the combs breaking out.

W. M. H., of Mich., bought two hives, presumably two-story, in the upper story of which the bees built combs up against the cover. As nearly as we can make out from the letter, there were no frames in the upper story. *Ans.*—We would remove the upper stories and transfer according to the directions given on page 19 of our catalog.

J. P. G., of Ky., referring to the short method of transferring, given in our catalog on page 19, would like to know whether there is any danger in leaving the old hive with the few bees to take care of the brood, honey, and combs. *Ans.*—No, there will be enough bees to take care of it; but the entrance should be contracted so that the few bees may be better able to resist robbers.

F. C., of O., has 75 or 80 lbs. of wax, and inquires how many pounds of foundation he can get out of it. *Ans.*—You ought to get as many pounds of foundation of any kind as you have pounds of wax, less the impurities that may have been in the original cakes; and this, in case of good wax, is practically nothing. Of course, if you are slovenly and wasteful in your work you will have proportionally less foundation.

L. H. L., of Pa., wishes to know how much acid to use to a two-gallon bucketful of comb. *Ans.*—For wax that has not been rendered into cakes—that is, broken combs, more acid must be used. A good deal depends upon how old the comb is—that is, how many cocoons are in the cells themselves. At best, out of two buckets of comb only, you will not get very much wax. If you have a solar wax-extractor, we would advise you to use that. A tablespoonful of raw sulphuric acid to about half a pail of water would be sufficient for the quantity of comb you mention.

T. E. H., of Ark., notices that we advertise starters for brood-frames, and would like to know how wide these starters should be. *Ans.*—They may be anywhere from half an inch to full width of the farmes; but generally about half an inch is used. The main purpose of the starter is to get the bees to build the comb centrally in the frames. Without starters there is danger that the bees, as you say, will build crooked combs, sometimes crosswise of the frames. The only way that we know of to make straight comb is to use starters, or, better, full sheets of foundation, wired with horizontal wires.

W. L. M., of O., has 20 colonies of bees to move a distance of 20 miles, and wants to know when it would be the best time to do it; and would we advise him to do it at night? *Ans.*—You can move them at any time after settled weather. If the weather is not too hot you can do it as well or better in the day time. Make sure that your frames are secured, and that the bees have plenty of ventilation. Wire cloth over an ordinary entrance, if the colony is not too strong, or weather hot, will afford sufficient ventilation; otherwise remove the top, and tack mosquito-netting or wire cloth over it. If the day is frosty, ventilation at the entrance may be sufficient.

J. E. M., of S. C., desires to know, 1, whether he should extract what honey the bees may have in their hives in the spring, so as to stimulate them to greater energy, or let them have what they may have. 2. "Do you recommend putting in full-sized sheets of foundation in sections?" 3. "Is it necessary to wire foundation in frames if we do not expect to extract?" *Ans.*—1. No, no. Leave the honey in the hive. It is poor policy to try to starve the bees to work, on the principle of "sink or swim." Let them have all the stores they have, and more too. 2. Yes. 3. No, it is not absolutely necessary, but decidedly advisable. Why any one should think wiring is unnecessary, when it costs so little to make a sure thing of the combs, is beyond our comprehension. The expense of the wiring material is about 10 cts. per 100 combs; and the labor, if performed during the winter months when nothing else can be done, is practically nothing. A few broken-down combs that have not been previously stayed by wires will pay for the cost of the work many times over.

J. R. S., of Ind., has a weak colony, and he inquires how to strengthen it up for the coming summer. *Ans.*—Contract their brood-nest to as small a space or to as few combs as they can possibly cover, having made sure that they have plenty of stores. When the weather is warm enough so they fly a little every day, give them a little stimulative feeding, with half a pint of warm sugar syrup. We omitted to say that such weak stocks should be, if not already, put into double-walled hives with some good soft warm packing around them. For that matter, this will apply equally well to strong colonies; for no stocks do as well in the single-walled hives in early spring as those having adequate protection.

R. M. C., of Cal., has just extracted some honey from unfinished sections of last season, and desires to know whether it will start robbing to set these out where the bees can clean them up. *Ans.*—Instead of putting them outdoors where the bees can have a regular jubilee over them, said jubilee finally ending up in a row, put the sections in crates and stack them over the brood-nest of a strong colony. If the hives are made so that they may tier up one above another, this can be very easily done. Sections might also be put in stacked-up hives, without the full colony under, providing the entrance is contracted to the space of one bee, so the bees could clear them out slowly, on the plan of gentle robbing, spoken of in these columns during the last year or so. R. M. C. asks again whether it would be prudent to transfer now. We do not see any reason why in your locality you could not do it almost any month in the year. The short method spoken of in our catalog is the one that we recommend.

N. A., of Wis., would like to know, 1, how to make a swarm cluster upon something from which they can be easily taken. 2. He requires a mold for beeswax, upon which his name may always appear in raised or depressed letters. 3. He asks also whether Norway spruce would stand the climate of his State. *Ans.*—The spray-pump recommended under "Swarming," in the A B C of Bee Culture, if properly used, will drive a swarm of bees in the air like a flock of sheep; and we have not only made the bees not cluster on places of their own choice, but in some instances have been successful enough to cause them to alight on some low-growing tree. It is always best to have low-growing shrubbery, or, better still, grapevines, growing around and among the hives. Bees are pretty apt to cluster upon any thing accessible after entering the air. 2. A mold for wax would be very expensive. You might be able to get a wood-carver to scoop out a block of wood with your name in the bottom of it, so that the impression would be left on the wax when it is cold. A tin receptacle with your name stamped upon the bottom in raised or depressed letters would be the best; but a special die, costing perhaps $30.00, will be required; but when this die is once made, thousands of the tins could be turned out from it. 3. We could not advise you regarding the Norway spruce in your locality.

Heads of Grain FROM DIFFERENT FIELDS.

BEES IN ST. PETER'S CATHEDRAL, ROME.

One very often meets with bees in this great church, but not, of course, living ones. They are molten, chiseled, and artistically painted. This arises from the fact that this great edifice was completed under Pope Urban VIII. This pope was from the noble family of the Berberini, of Florence; and the insignia of this family, on their shield, was three bees. When the decorative work of this art-loving pope appeared in nearly every feature of this edifice, his coat of arms, the three bees, was caused to appear also. and so we have the spectacle of these busy workers in St. Peter's church.

Medina, O., Feb. 20. KARL R. MATHEY.

SPREADING BROOD; IS IT ADVISABLE FOR BEGINNERS?

I see the A B C says nothing in regard to spreading the brood in the spring, and I should like to know if I should be spreading it too fast if I did it as follows:

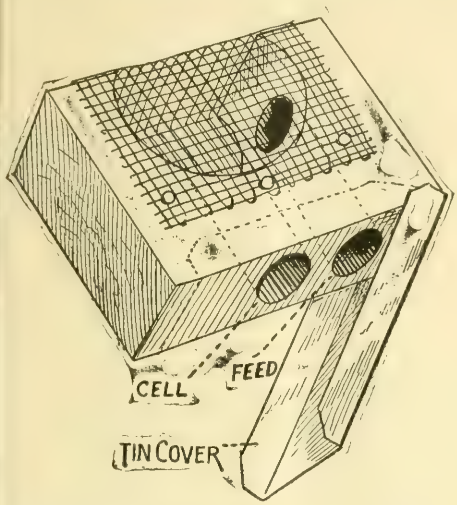
My hives are the 8-frame Langstroth, and I should want to commence about the 1st of Apr. in this locality; and if they have 2 frames of brood at that time, spread it to 3; in just 10 days, spread it to 4; in 9 days more, spread it to 5; 8 days more, spread it to 6; 7 days more, spread it to 7; 6 days more, spread it to 8. If they had 3 frames of brood at first, instead of 2, I would spread it to 4, and then commence again in 9 days instead of 10. Do you think that, if this plan is all right, it would do to spread it any faster? R. S. CHAPIN.

Marion, Mich., Mar. 1.

[No, we do not say very much in the A B C about spreading brood, because we believe that beginners, as a general rule, will do more harm than good by it. The plan that you propose is a little too severe for the average colony; but with moderate weather, or such weather as the bees can fly every day, with the nights not too cold, you might be able to spread the brood as fast as you say, providing the bees are packed in a good warm chaff hive. But we would advise you to go slow, even then. If you want to get a little experience, all well and good: but as a general thing, only veterans should atempt to do very much at this spreading business. There are so many conditions that it is mpossible to give a rule that will hold good in most cases.—Ed.]

QUIGLEY'S NURSERY CAGE.

I send by to-day's mail a sample of a nursery age devised in Progressive Apiary the past seaon. The plan of putting in the queen-cell and eed is taken from Mr. Alley's cage; the rest of he cage, and manner of using it, is my own, so ar as I know. These cages are used in a case or super with wooden T rails, and set in the ase like sections. They are put over a strong olony to hatch out the cells. When a queen is emoved, the cage is turned bottom up, so that the apiarist can see just how many queens remain. By using a good nursery cage a breeder can nearly double the number of queens in a season with the same number of nucleus colonies; then if you have a lot of cells that will hatch on Sunday they can be put in the nursery Saturday evening, and they will be all safe Monday morning. E. F. Quigley.



Unionville, Mo., Dec. 30.

OLD HONEY.

An interesting discovery was recently made in the carpenters' building-yards of the Tafala Railroad, in Spain. A large elm log having been cut off, there was discovered in the middle of it a spacious cavity which was nearly filled with honey-comb, besides which the skull of a squirrel was found. An entrance to the cavity was nowhere visible, and there was no sign of unsoundness in the wood. Round about the cavity there were counted fifty annual concentric growths of wood. The bark was complete and uninjured. The bees had evidently been in possession of the tree for several years. Previously to that, the squirrel had, perhaps, lived and died there, as it had gnawed the hole out evenly. The narrow entrance had become closed by the gradual encroachment of the growing wood, and the tree grew fifty years without the honey being injured in the least.

Medina, O., Mar. 15. Karl R. Mathey.

[We presume *that* honey was promptly *extracted*.—Ed.]

LITTLE NUGGETS OF ADVICE TO BEE-KEEPERS.

Do not imagine that all the bees in an apiary have nothing to do but watch your motions. That would be as great a mistake as to place yourself right in their path and stand still to meditate, or swing your dumb-bells.

Never think you know what bitter is till you have tasted a bee-sting, nor that you know all of fire till you have felt the sudden heat produced by that same little instrument of exquisite torture.

Never think you know how many bees even one hive holds till you run your lawn-mower too close to it, or rouse their just ire by some other equally unwarrantable intrusion.

Do not shout at a bee-keeper, or keep up a long and continued stream of talk when he is in the thick of his work with hive open, and its lively inhabitants mostly turned out and congregated about his head, and expect his immediate attention. Bees are not deaf, and their masters are not always *patient* men.

Attention to these directions might save yourself or others annoyance when in or about the apiary. R. M.

Jan. 10.

WISCONSIN CONVENTION; SOME OF ITS LARGE YIELDS.

At the annual convention of the Wisconsin State Bee-keepers' Association, held at the State-house, Madison, Feb. 7 and 8, the following were elected officers for the ensuing year: President, Frank Wilcox, Mauston; Cor. Sec. and Treas., J. W. Vance, Madison; Rec. Sec., H. Lathrop, Browntown.

The attendance was not large, but the sessions were enjoyable and helpful to those present. All reported a good crop of honey last season; and from reliable sources we learn that Southern Wisconsin can show yields as surprising as any in California. One man in Dane Co. reported a yield of 2300 lbs. extracted from five hybrid colonies that were not allowed to swarm. They were in hives having a brood chamber about three feet wide; the brood was spread in order to obtain a large force of workers, and afterward the hives were tiered up with half-depth frames, L. size. There were other reports nearly as good; but let me say to those who may have an eye on bee-keeping in this favored land, you can't buy good bees at $2.00 per colony as they say can be done in California.

One important act of the convention was a resolution directing that the association, through its secretary, and in behalf of the

bee-keepers and honey-dealers of Wisconsin, ask the Classification Committee to make the rates on extracted honey the same as on syrups when in similar packages. H. Lathrop,
Browntown, Wis., Mar. 8. Rec. Sec'y.

FLOUR PASTE FOR STICKING LABELS TO TIN.

Occasionally I see in Gleanings that parties have trouble in making labels stick to tin or glass. In the last issue, such complaint is made by the editor, in speaking of a new kind of mucilage, or glue, that he is offering for sale. I don't see why any one should have any trouble in getting labels to adhere firmly to either tin or glass. A simple flour paste will make them "stay there," is easily made, and insignificant in cost, a teaspoonful of flour making enough paste to put on 50 labels 3x6 inches in size.

Sparta, Miss., Mar. 9. L. Hall.

[There has been almost a universal complaint that the ordinary pastes, including that made of flour, will not stick labels to tin. If you know of any way by which the flour paste will hold a label on tin for a year or more, you must have a knack unknown to the rest of us. Perhaps you can tell us.—Ed.]

EXAMINATION OF HONEY AND WAX.

The Austrian *Journal of the Apothecaries' Union*, in No. 29, 1892, contains a report in regard to examinations recently made in food and drugs, from which I extract the following in reference to honey and wax. Four kinds of honey were examined, one of which contained about 45 per cent of cane-sugar syrup. Another, under the name of "Turkish Honey," contained four per cent of clayey earth. Two samples were unmixed.

Three samples of wax were examined, which also were adulterated. They contained:

	Per cent.		
Wax	41	48.1	19.3
Stearic acid	32	35.0	11.2
Paraffine	27	16.6	69.5

In the entire list examined (embracing about 27 varieties and 532 samples), no object was found that was so much adulterated as beeswax. Karl R. Mathey.

Medina, O., Mar. 19.

SUCCESSFUL USE OF WATER-BOTTLES IN QUEEN-CAGES.

Seeing you have failed in your efforts to provision queen-cages with a vial of water, perhaps you would like to know how we prepare the one of which Mr. W. A. Pryal speaks in his article in the *American Bee Journal*. We used two cages, one supplied with Good candy; the vial is fitted into the other, and the two are nailed together. We use a small piece of sponge to stop the bottle with. It should be stopped tight enough to prevent its leaking. You can test the matter by filling the vial with water, and stopping it up and laying it on a piece of paper. If it wets the paper you have not stopped it tight enough. A queen and 16 bees thus supplied were mailed here at Chriesman, and traveled to Mr. Pryal, at Temescal, Cal., and from there back to me, and only a few of the bees were dead when they reached me. There were a few drops of the water in the vial when it returned. It is said to be over 2000 miles from here to Temescal. If so, that queen traveled 4000 miles, and was in fine condition.

I have kept queens caged for weeks at a time, provided with a vial of water, and they always seem more lively than they do when not thus provided. C. B. Bankston.

Chriesman, Texas, Mar. 1.

[We are of the opinion that friend B. has contributed a valuable idea in the use of the sponge. We shall certainly try it. Will the Atchleys send us a queen and attendants? We will return them. The queen may be sent back and forth as long as she is alive. Is it cruel? No, because it may save the lives of thousands of other queens.—Ed.]

LADIES' CONVERSAZIONE
? !

WILD CUCUMBER; OTHER VINES FOR SHADE AND FOR RAISING THE BEE-FLIGHT; SEE PAGE 90.

Have you a perennial vine? The vine we have here, *Echinocystis lobata*, is an annual, the seeds peculiarly marked; seed-pod shaped like a cucumber covered with spines, but not aggressive, either as to spines or growth. I planted seven seeds in the spring, and four grew. The flowers, a greenish white, were profuse, growing in spikes, and continued long in bloom. They are said to be fragrant, but that I did not notice. I think the bees did not care for them; but if used for a screen, that might be as well. Here, to have them grow, care must be taken to plant early enough to subject the seeds to frost.

It seems to me, if we want permanent screens, or screens for even a few years, perennials are more desirable, as giving less trouble, and being more likely to be ready when needed. The madria is a rich vine and a good grower, but the roots must be lifted and cared for like the dahlia.

How would cinnamon honeysuckle and rose-vines suit, brightened with the annuals spoken of by C. P. C., or using them till the other vines were established?

Please ask Dr. Miller to tell us how to adulterate our butter with honey to get that delightful English flavor. Should the honey be granulated? Ruth Moore.

Tiffin, O., Feb. 12.

[You are correct. The wild cucumber is an annual and not a perennial. We were under the impression that it sprang from the roots each year; but Mrs. R., to whom we referred the matter, says our old vine springs each year from the seed. Yes, a perennial vine would be preferable.—Ed.]

GLEANINGS IN BEE CULTURE
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2, 3.

Just before going to press. March seems dis-osed to "go out like a lion." It came in "like lamb," and verily we had *hopes* that the lamb" would stay with us.

WHAT'S the matter? Well, we have got the art before the horse. Mr. Manum's article, hat appears on page 227 of our previous issue, ould have *followed* the one in this number. f the reader will refer to the former he will e that they fit a little better when the order reversed.

IT is with much regret that we announce that Ir. Charles Nash Abbott, founder of the *British Bee Journal*, and for a number of years its ble editor, died at Southall, England, on the d day of March, 1894, aged 63 years. Mr. Abott was a practical and progressive bee-keepr, as the pages of the old *British Bee Journal* how. Our business relations with him were ery pleasant.

THERE have been some guesses and speculaions among our readers as to who that prepossessing young (or old) lady is who is representd so graphically in this issue, as "treeing" he Rambler, and who appears to such good adantage on page 181, March 1st issue. Well, to ell the honest truth, we are as much in the ark as our subscribers. She simply signed Eugenia Morse to an "open letter" which, on ccount of the good news for the Rambler, we ere very glad to publish.

A NICE way to make foundation transparent, or exhibition purposes, if not already so, is to pply the sheets to a gentle heat for a short ime. Just try the experiment by cutting a heet of foundation in two, and hold one over he stove a few inches from it, until it becomes uite soft, and let it remain in this condition or a couple of minutes suspended over the tove. Now lay it down by the side of the other sheet from which it was cut, and notice how nuch more beautiful one is than the other.

OUR apiarist reports that the Carniolans were he first to bring in pollen this spring. As to heir disposition they are just a little more ouchy than the average Italians. This we ave thought was true of colonies of this race we have had. One marked peculiarity of all he Carniolans we have ever seen is, that if one ee flies up to sting like a shot, the chances are here will be a dozen or more that will follow suit, all going for the same target. With Italians and hybrids the case seems to be a little different. One will dart up, and if the disturbance continues, perhaps one or two more; and so on the little defenders come out one after another. But the Carniolans have learned, perhaps by experience, that it is better to make a *charge*.

"FIXIN'S."

A WEEK or so ago we had a very pleasant call from Mr. Chalon Fowls, of Oberlin, Ohio. He is the friendly bee-keeper who used to visit the writer while studying in that place; and many and many an hour have we spent discussing the subject of bees. Some nine or ten years have gone by, and it seemed like old times to discuss, not the old questions, but new ones developed by Father Time. Among other things, Mr. Fowls said he had learned to look with caution upon new devices or implements that seem to promise much, especially if they appear to foreshadow revolution. There was a time when he was induced to invest in all the new "fixin's;" but in later years he has learned to get along without them; and as the years go by he found he had saved by not investing in what apicultural experiment stations and private individuals had found to be worthless. He makes money at bees, but finds it necessary to hold in his enthusiasm a little until time shall prove all things.

And right here it may be said incidentally, that there is wisdom in establishing experiment stations, the expense of which shall be borne, not by one individual, but by the State. But it does not do to rely entirely upon the conclusions put forth by any one station, because the climate, personal prejudices, and a few other things, are apt to be misleading.

WINTERING AND SPRINGING UP TO DATE.

WE are happy to announce that, so far, not a colony in our 125 has been lost. Indeed, they are in better condition now than they were last fall. They have been raising some brood during these warm beautiful days, and young blood is making a pleasing appearance on the brood-frames. All our colonies, with the exception of one, were under absorbing cushions; but even that one under a sealed cover wintered just as nicely as the rest. In fact, it is in splendid condition. A year ago at this time our loss, part under sealed covers and part under absorbing cushions, was 20 per cent.

While we have not this past winter lost any whatever, it does not signify at this date that we shall not lose any; but when bees have wintered well and "springed" up to this time, we naturally feel hopeful that they will spring it out into summer in good condition. A year ago, besides the loss of many, our colonies were in bad condition; but this year, there is not one. In fact, we have not even had to unite.

It just occurs to us that the bees do say something quite positively on the 8 *vs.* 10 frame hive question by Taylor and Miller, in another column. It is this: For this locality, and it seems to us for most northern localities, the bees say that, if you give us a ten-frame hive we will fill eight of the combs with brood, and put honey into the two outside combs. Their manner of *saying* it is by *doing* that very thing —not invariably, but generally. Of course, they do not *say* that they want an eight-frame hive; but the *bee-keeper* says, at least most of 'em, "I'd rather have the honey in those two combs in the supers. But another may say, "I *want* that extra honey in the brood-nest for a reserve, while the first mentioned will assert, "I don't, because there will be enough honey scattered among the brood." Then, again, the average Italian queen does not usually lay more than the capacity of 8 Langstroth frames. The point is here: If the bees do certain things in a certain way, different bee-keepers will adopt their appliances to meet those certain ways.

EXTRACTORS CONTAINING REELS HOLDING TWO PAIRS OF COMBS, ONE BEFORE THE OTHER.

Some time last fall we constructed a Cowan reversible extractor, made so that the two pockets could be revolved on one pair of hinges, thus making a four-frame extractor with a can only 24 in. in diameter. The combs were thus made to revolve in pairs—one comb in front of the other. A sheet of tin was put between each pair of pockets so as to prevent the honey from the inner comb from being thrown on to the next. We sent the machine to our neighbor, Mr. Burt, who had some more honey to extract. A day or so later we went down on the wheel to witness the result. When we came to extract we found we could throw out the honey, but we could not do it nearly as nicely and rapidly as with machines having each a comb-pocket swinging on separate pairs of hinges; worse than all, the side of the combs next to the sheet of tin would have perceptibly more honey in the cells than in the sides of the combs next to the circumference of the can. There is no getting around the fact; extractors having two pairs of combs in the reel—one comb in front of the other—can not do the work of extractors arranged so that each comb will be equally distant from the center of the extractor. Centrifugal force, at the same speed of revolution, will be always greater on combs furthest from the axis of revolution, and hence theory and practice say that one side of every comb in extractors of the type mentioned at the outset will be extracted cleaner than the side that comes next to the center of the can.

THAT "BAD FIX."

We are sorry to refer again to the subject of golden Carniolans, about which Mr. Alley has taken up of late in the *Apiculturist some fourteen columns* of matter to refute three or four short paragraphs of ours. Well, he thinks he has us at last in a "bad fix." He refers to an old editorial of ours, years back, wherein we mentioned that one of our imported Carniolan queens showed yellow blood; but Mr. Alley, in his quotation, leaves out the *very point* in that editorial that would weaken his whole argument; viz., that we did not think this queen was pure. At all events, Mr. Alley does not deny that his original yellow Carniolans were produced in an apiary but a little over a mile from an apiary of Italians—yes, he admits all this in *American Bee Journal*, page 330, Vol. XXVIII. Granting for a moment that there is yellow blood in the Carniolans, the proximity of that apiary of Italians completely upsets his whole array of arguments. No *reasonable* authority disputes that queens and drones may fly much further than a little over a mile, and hence it is perfectly easy to account for at least a part and probably all of the yellow blood in his golden Carniolans. Lastly, Mr. Alley has put quotation-marks around sentiments attributed to us, with the wording slightly twisted from what we actually wrote. This is not the first time he has done this.

WINTER VIEW OF OUR OWN APIARY—P. 270.

In the garden department A. I. R. has told something about the picture on page 270 so far as it relates to horticulture. It remains for us to tell you of the bee side.

As you will notice, the bees are either in chaff hives, one and two story, or in single-walled hives protected by winter-cases. The last mentioned are shown clear in the corner. The one and two story chaff hives appear in the foreground. There are more of the two-stories, because we had those in the first place; and as they have done us most excellent service we did not feel like throwing them away for the lighter and more convenient one-story chaff hives, such as we now recommend. This picture was taken on a cold, blustering day, at a time when some snow was falling. A few hours before, the evergreens were loaded down with snow; but a thaw in the morning, before the camera shot in the afternoon, disposed of a large part of it. With the exception of last winter, and the one of 1881, we have wintered bees with almost no loss so far, in this inclosure of evergreens; and these form a very important feature of the wintering problem at the Home of the Honey-bees. As Mr. Boardman well says in another column, referring to those about his place, they afford great protection. These trees were set out in 1879, and now most of them are from 20 to 25 feet high. Near the ground the branches are tightly interwoven, so that it is almost impossible for one to make his way through, even if he were to crawl on his hands and knees. The factory buildings on the east and south shut off the wind from those directions, making the inclosure complete.

OUR NEIGHBORS AND OURSELVES BY A. I. ROOT.

But Jesus said, . . . Ye know that the princes of the Gentiles exercise dominion over them, and they that are great exercise authority upon them.—MATT. 20: 25.

A few days ago Mrs. Root came to me with unusual animation, saying she had found an excellent article in the *Sunday School Times*. She said it was one of the best articles she ever read in her life anywhere, and she finally concluded with something like this:

"Why, I really believe it is the best thing I ever read in my life, anywhere."

I could not help smiling; for had it been myself, such unusual enthusiasm would not have been any thing strange at all; but she is so careful and so moderate in her use of adjectives, especially in the way of commendation, that I thought there must be something exceedingly remarkable in the production. And, by the way, I have often wished I could induce her to let me give the world some of her excellent ideas through these Home Papers. In fact, I have urged her to write something herself; but she has always been so very positive that it was out of her line, and that she had not any thing worth giving to the world, I have been obliged again and again to give it up. She will probably never write any thing for the papers unless some remarkable force or influence, or set of circumstances, is brought to bear. Never mind. I have something that will give you a glimpse of her character, even if she did not write it herself. Before I got through reading it I was obliged to laugh outright to think that anybody should have given in print her ideas so exactly. No wonder she was pleased with what she found. Well, after all this ramble I am ready to make some considerable clippings from the article in question. It appears on the first page of the *Times* for Feb. 17; and the title is, "A Domineering Spirit." Let us examine the first paragraph:

> To "domineer" is, literally, to exercise control or mastery; but, in the ordinary meaning of the word, the man who domineers is one who has no mastery over himself, but who wants to show his mastery over somebody else. Dominion is God-given power; but domineering is evidence of utter lack of Godlikeness in the use of power. He who has a right appreciation of the responsibilites of dominion can not domineer over any person or creature in the realm of his dominion. Domineering is utterly incompatible with the sense of right dominion.

Very good, is it not? Now, this next paragraph shows Mrs. Root's special individuality completely:

> The domineering spirit manifests itself in weak men and women in every position and grade of life, from the sovereign on the throne to the head-servant in the kitchen, and to the owner of a horse or a dog in the lowest walk of life

In this world of ours, everybody and every dumb animal has rights of its own. I have sometimes thought these individual rights were like a little circle that surrounds a person, animal, or insect. A man has a right to live. It is his privilege to go about in the world, and a certain amount of deference and respect belongs to him. The open street, or "king's highway," as we used to term it, is, to a certain extent, his property—at least, he has a right to use it, providing he does not let his circle encroach too much on that of somebody else. A child, also, has its rights. If some one should say, "Here, you kid, get off the sidewalk, and let me get by," the kid would be very likely to resent the encroachment on his rights, and other people who might be near would also resent this encroachment. The child has as good a right on the sidewalk as anybody else—of course, within the limits before mentioned. Now, the horse has rights also. He knows what is due him, and most horses are inclined to resent encroachment on their accustomed rights. So long as a horse or dog attends to its business, and does good and faithful service, it is entitled to respect, and to a place in the world. The domineering spirit disputes these rights, and encroaches on them, and most good people are moved to make a protest when this domineering and overbearing spirit comes around. By the way, I forgot to say that even a honey-bee has its rights and sense of justice. If you do not believe it, let some of these domineering, overbearing chaps undertake bee-keeping. The bee, like the old hen with the chickens, or the dog or the horse, gives the domineering person to understand that its rights or its circle I have spoken of is not to be readily trampled on. If you treat the honey-bee in a proper way you may open its hive, and do almost what you please. But you must be thoroughly acquainted with it, and you must pay a certain sort of deference or respect to its rights; and the same with the dog. You can abuse him considerably, and he will take it meekly; but if you tread on his tail, and especially if you do it on purpose, he will, if like most dogs, give you to understand that said tail is his own personal property; and the same with the hen and her chickens. She tells you to go along and attend to your own business, and she will attend to hers.

Mrs. Root is not a quarrelsome woman. Why, what an idea! Wait a bit. There is one way in which you can make her aggressive. A man who had charge of a pony of ours once struck it a severe blow with the whip when the little fellow was not doing a thing out of the way. He was behaving just as well as he knew how, and the man who struck him was obliged to admit it. He said he did it simply to let the pony know who was master. Now, if you think that is the way to get along with a horse you could not get along with Mrs. Root. Another thing, when a man is whipping a horse brutally, and somebody tells her not to make a fuss about it, as the man is drunk, and does not know what he is doing, it does not pacify her a particle. Under the circumstances she always wants somebody to take the whip and use it on the man, and take the horse away from him. Let us read a little more from the *Times:* -

> And, wherever this spirit exists, it is a sign of weakness and not of strength. God gave man dominion over the lower animals, but God authorized no domineering over any beast or bird in subjection to man. God gives man dominion in various spheres of social life—spheres of state, and church, and school, and family, of practical business, and of mere manual labor—but God holds man responsible for the measure, the manner, and the spirit, in which he exercises his deputed authority. Only as man forgets the source of his authority, and lacks fitness for its exercise, does he domineer over God's subjects, instead of serving God in his exercise of right dominion. Yet many a man is thus forgetful and thus incompetent, and therefore it is that it can be so truly said of one who domineers in his realm of dominion:
>
> "But man, proud man!
> Drest in a little brief authority;
> Most ignorant of what he's most assur'd,
> His glassy essence, like an angry ape,
> Plays such fantastic tricks before high heaven
> As makes the angels weep."

Oh, dear me! I knew when I started out to give you this article that it was going to cut severely on my poor self. From what I have said, you might think that I would be especially free from a domineering spirit. Yes, my good wife assured me, when she gave me the article, that I must not think that, because she requested me to read it, I particularly needed such a sermon. I believe it; for, out of the kindness of her heart, she overlooks and forgives her poor husband's weaknesses. May God help me to see my own faults, and mend them; for if God does not help me I shall never be at all worthy or fitted for the place he has assigned me. Let us read again:

> As a rule, the greater the man the less show of power, on his part, in his bearing toward those who are in his realm of dominion. Greatness shows itself in the reserve of power beyond its manifest exercise. A really great man, in any sphere of life, puts a subordinate man at his ease in an interview with him, while a man of small caliber causes those who approach him to suffer under a sense of being counted by him as in some sense his inferiors.

Does anybody need that last paragraph as *I* need it? If so, may God help him.

> It was a well-known fact in the days of African slavery, that the harshest tyranny over a gang of blacks was likely to be exercised by one who was himself a slave, and who, having never controlled himself, was unfitted to control others. And the same principle prevails in every realm of dominion—the smaller the man in authority, the greater his liability to domineer over those in his sphere. A domineering spirit is inconsistent with greatness.

Did that ever occur to you before, my friend? The smaller the man in authority, the greater his liability to domineer over those in his sphere.

> The nearer the brute a man is, the surer he is to misuse the brutes which are under him. A horse fares better in the care of a man of character and refinement than at the hands of a degraded hireling, who has the power of cursing and beating the horse which he is set to drive. And many a dog cringes and suffers under the scowls and kicks of his *inferior* owner, who knows nothing of the true power and privilege of dominion beyond the opportunity of domineering. The whole brute creation groaneth and travaileth in pain until now, because of the curse of the domineering spirit in the realm of God-given dominion.

I presume likely the above remarks in regard to cruelty to dumb animals is particularly what commended the production to Mrs. Root. When I first began to court her, in the days of her girlhood, I remember her good old father once said to me, jestingly, "If you expect to get along with her you must let her have her own way in seeing that all domestic animals and dumb brutes about the premises are well fed." Yes, I found that out; and I found out, too, that it was not feeding alone that commended itself to her. To see a child or an animal suffering for food is indeed sad. Of course, she believes that children and dumb brutes should be made to obey proper authority; but her convictions have always been very strong to the effect that pounding and whipping are rarely if ever necessary to secure the best kind of obedience. I used to believe in punishing by whipping them; but I have been conscious for some time that I have been gradually losing hold on that idea. When people have been neglected until they have become very bad, it may be necessary to do some whipping. Mind you, I say it *may be*. I am not *sure* of even that; and I believe it is due to my good wife—to the fact that she practices what she preaches—that I have been, during these many years I have known her, gradually changing my views. Let us read again:

> Domineering grows out a mistaken view of the limits of dominion; and this is peculiarly the case in the treatment of children. A parent supposes that his children, at least, have been given to him, and that, because he has dominion over them, he can treat them as he pleases. A teacher thinks similarly of the children put under his control for the purpose of their education and training. H feels that, having dominion over them thus far fo the time being, he can exercise that dominion unhindered. But both parent and teacher are to remember that the child has a spirit of dominion a well as themselves, and that their dominion is no to interfere with his dominion.

You will notice the writer of the above tell the same thing, only in a little different language, from what I have been saying. Let u read again:

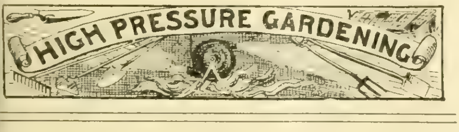
> God gives to no man dominion over another man individuality and truest personality. Every chil comes into the world fresh from God, with its ow peculiar identity and distinctive self, as apart fro every other human being in the universe. Whil that child is brought under the dominion of paren and teacher and civil ruler, their dominion over th child is to be exercised in view of its dominion ove itself, and not to the doing away with that dominio over its inner personality, which it has receive from God, and for which it is responsible to Go He who recognizes a child as a representative c God, and as a charge from God, will honor tha child's individuality, and will give deference t that child's domain of his sacred personality; h will not domineer over the child. To despise th child's personal dominion, or to trench upon it, is t domineer in a realm where the child is responsibl only to God. A child will resent domineering fro parent or teacher, because God never authorize domineering over any creature of his by any creature. A child who perceives that one who is ove him in the home or in the school has respect for hi rights in his own realm of dominion, will be all th readier to respect the rights of the one above hi in the parent's or the teacher's realm of dominion.

Well, I declare! After reading the above I a almost ready to say with Mrs. Root that thi production on domineering is one of the bes things I ever saw anywhere. Now, then, y husbands and fathers of families, brace up an be ready to receive with meekness and honest your part of this wonderful sermon to us all.

> Most contemptible of all is domineering in th closest and holiest of relations—in the marriage lif The husband, claiming to be the head of the hous often seems to think that there is no other head tha his in the house, and that therefore there is no roo for a wife's dominion over her own personality, he own opinions, her own tastes and preferences an moods of feeling, and her own conscience. He eve feels entitled to disregard her prejudices, to trea lightly her counsel or cautions, to fail of givin honor to her sentiments and convictions, and t hold closely and sharply to his view of any questio at issue, despite her counter-views, without even a effort at an open-minded examination of the question in its discussion with her as an equal, if not indeed, as a superior. This is domineering of a inexcusable kind.
>
> It is true in this sphere, as in every other, that th domineering spirit is a sign of weakness and o smallness, and that the larger-minded the man th surer he is to be free from domineering over hi wife, and to be prompt and hearty in his recognition of her rights, on the one hand, and, on th other hand, of her help to him in his best endeavor through her individuality and independence an her womanly instincts. Even the man who is positive in his convictions and outspoken in expressio of his opinions in his ordinary ways with others, i deferential to the personality of his wife or child i proportion to his own love and largeness.
>
> Domineering can not accompany goodness o greatness. It is an accompaniment only of littleness of nature, and of false views of power an dominion.

While I was reading the above the first time I was sitting at my secretary in our home This secretary is where my agricultural periodicals are all deposited. I do not always read them as fast as they come from the office. I try to, but stern duties oftentimes compel me, reluctantly, to let them accumulate. Sometimes the lid of the secretary will not shut up, and Mrs. Root can not have every thing looking as tidy as she likes. Then she suggests putting the surplus into a basket; and she sometimes adds, "You know you will never read all of them, anyhow." But I keep thinking I am going to catch up. Well, during the evening in question I was sitting at my accustomed secretary; and, by the way, below my books and papers there are some drawers that I never use, which she has appropriated for the childrens' clothing, etc. When she wishes to get at one of these drawers, I am obliged to move away just a little. Well, now, please notice right while I was in the midst of this very eloquent appeal to domineering husbands, she came in in a great hurry and wanted to get into one of those drawers. I was so fully occupied with my reading that I did not move until I felt the well-known corner of the drawer against my knees. My friend, when your whole mind is taken up or absorbed with something you are trying to grasp, did you never feel a little irritability because somebody bumped or pushed you? If so, you can understand me. Had my good wife said, "Husband, will you please pump some water and fill the reservoir?" I would have jumped up with alacrity, feeling pleased to think she permitted me to use my strength so as to save her own. But this other, somehow, struck me differently; and, if I recollect aright, I grumbled a little as follows: "Oh! I do wish you would keep your things somewhere else than in these particular drawers that must be got at when I am specially interested." Then I went on reading as before; and, come to think of it, I do not believe my conscience troubled me very much either. In about four minutes, back she came, and was tugging at the drawer, and bumping it against my knees as before. I looked up and she said, very mildly, "If I were afraid of you I would not come back to bother you quite so soon. But you see I am not a bit afraid, even when you scold." And then I began wondering whether I was not, after all, a little bit domineering. Oh, dear me! if it were not for the grace of God, and for the love of Christ Jesus which has all these years had a permanent lodging-place in the hearts not only of myself and wife, but, I trust as well, in the hearts of every one of the five God has given us, with my special characteristic traits, with my impulsive and perhaps aggressive tendencies, I shudder to think of the mischief Satan might have done in our home in this especial line we have been considering. Now, I have not said very much about our text, and I am going to finish without doing more than to quote the verse that follows the text at the head of this talk.

> But it shall not be so among you: but whosoever will be great among you, let him be your minister.
> MATT. 20:26



GARDENING IN WINTER.

Perhaps I should explain a little in the first place, by saying that Ernest took, from the roof of our machine-shop, a photograph of the apiary, without telling me any thing about it; therefore I did not have any time to arrange things or to take off some of the sashes. (See engraving on page 270.) The glimpse you get is a haphazard one looking in upon us unawares. The special point I wish to call your attention to is the effect of the exhaust steam. One bed—the one nearest the factory—does not show in the cut at all.

Let us commence at the lower left-hand corner of the picture where you see the men have been drawing basswood through the apiary to the lumber-yards. I knew the ground would be thawed out all winter where this roadway crosses my line of beds; and to prevent a great mud-hole at the crossing I put in an immense piece of sawed flagging some 8 or 10 feet square. This stone soon became warm—sometimes quite hot; and it has had scarcely a bit of snow on it this winter, for it has thawed off as fast as it fell. The men who draw basswood very soon began to complain of the mud-hole on each side of this stone; therefore we piled in lots of tin scrap from the tin-shop, and then covered the scrap with coal cinders; but it took so much time to make decent traveling that it reminded me of the Slough of Despond where so many cartloads of road material were apparently wasted.

Well, this exhaust steam did some other things that we did not calculate on. Down by the pump you will see where the snow is thawed off as well as along the beds. This is right over the water-pipe that carries water from the big windmill on the hill down to the barn, for watering the stock. This water-pipe happened to cross the tile carrying the exhaust steam, coming pretty close to said tile. The consequence is, that, without planning for it at all, we have warm water for our stock to drink, no matter how near zero the weather may be. The ground becomes so hot near that tile carrying the exhaust steam, that it heats a good many feet each way; therefore from 12 to 20 feet the standing water in this pipe is more or less warm. When some is taken out to water stock, this hot column of water moves down toward the barn. Some more becomes hot, and this moves down, and so on; and you just ought to see the rank dandelions along the line of that water-pipe. They have been in bloom more or less all through February and March.

Let us now walk along toward the house, which you see in the opposite corner of the picture from where you started. You will notice the snow is thawed from the ground for several feet away from the glass. This ground also dries up so quickly that it is dry ground to walk on, most of the time, even in winter. The most trouble we have had with our beds is with too much heat; and you will notice some of the sash are drawn a little to one side, even though it was a cold winter day, with no sun shining, when the picture was taken. The end of the bed nearest the roadway is where I have been getting ripe strawberries. During the last of February, however, the cold was so great that the green strawberries were either frosted a little or cooked by too much heat—I can't yet tell which. Had we used shutters or straw mats over the sash for a few nights, it would probably have been better; for such intense cold outside of the glass, and so great a heat inside, do not seem to be quite the thing for tender stuff.

Over at the further end of the beds you will notice a cloth-covered frame. This is double width—that is, the width of two sash. During a warm spell in January I had in this frame a nice show of beets, spinach, and onions. In fact, there was stuff there almost large enough to sell; but during the severe freezes in February, pretty much every thing was lost. Of course, we had *heat* enough; but it does not make much difference how great a heat you have; with only a cloth cover between the plants *inside* and almost zero weather *outside*, the thing does not work, as I have explained. Cloth covers will do very well over onions and strawberries, or things equally hardy, providing you do not have very much heat underneath the cloth. I think cloth covers would, however, answer nicely for spinach, but I have not tried them very much. When I was down at Newcomerstown my friends Wardwell and Nicodemus told me that beautiful lettuce had been raised in their locality, with no covering except cloth, and I think we could do the same thing here if the cloth were covered with shutters, straw mats, or something of that sort, when the temperature is down to, say, 5 or 10 above zero.

Now, just as we get to this cloth-covered frame you will notice another streak of bare ground running down to some sashes at the left side of the picture. After I got my steam-heating apparatus nicely at work I noticed there was an accumulation of water at this point—that is, water in the tiles; and as there was a slight depression right where it accumulated, so as to interfere with the passage of the steam, I was obliged to lay a line of tile to carry off this condensed steam; and, without thinking about it, I had another hot piece of ground ovre this tile, and where it discharged into the open air I soon found we had a hot spring rivaling some of the hot springs of California. I made a little reservoir of this hot water, and set a frame over it to hold sashes. The hot water was carried in tiles all around the bed, making sub-irrigation, and regulating temperature with hot water besides. Well, this worked beautifully during the month of January, and I invited our friends at the experiment station to come and see my combination of hot-water heating and sub-irrigation. With the severe weather mentioned, however, my Prizetaker onion-plants began to look a little sick. You see, the beds are covered with the slatted glass I have mentioned before; and the onion-plants were thriving to such an extent that they actually stuck through the spaces between the glass; but a zero temperature shriveled up their tops, and shriveled up the bottoms of some of them also. Hot water at the bottom of an onion, and zero around its top, did not work first rate. Notwithstanding, we have a pretty good stand of onions in that bed, and it comes as near being an automatic *hot*-bed as any thing I ever saw.

There are various other plats on our grounds, not shown in the picture, where the exhaust steam has been crawling off into our drain-tiles where we least expected it. Beyond the evergreens up near to our house we have been planning to have some hot-beds for flowers; but it has not yet materialized, unless the nice bed of dandelions, with bees buzzing all over them, might be called a floral display. The exhaust steam, after going all around under the floor, as I have heretofore explained, making so many twists and turns you might think all the heat would be tortured out of it—the surplus, after doing all this, finally comes out of the center chimney near the little observatory with a fence around it, on the peak of the house. The artist who did the half-toning made a mistake in retouching, and put in some steam coming out of the north chimney.

Right above the poultry-house is seen the residence of Mr. J. T. Calvert, our son-in-law, and business manager of the establishment. The building next to the east belongs to Neighbor H., who married Mrs. Root's sister. The artist has been trying to give it some "retouches," but I for one do not very much admire them. Ernest's home, still further to the right, does not show in the picture; but it is an almost exact counterpart of Mr. Calvert's, both being built after the same plan. Perhaps I should add that the row of hot-beds in the center of the picture runs east and west. Beyond the evergreens is a street separating our home from the rest of Rootville across the way.

CHEMICAL FERTILIZERS VS. STABLE MANURE ETC.

A. I. Root:—On page 251 of Gleanings for March 15 I find the following note concerning a little notice in the *Rural*, about Mr. T. B. Terry's new book:

> Now, I believe every word the *Rural* says; but I am a little surprised to see they give such extravagant praise to a book that does not agree with them at all in the use of chemical fertilizers. In fact, I sometimes feel troubled to see the *Rural*, week after week, give such tremendous puffs to these things and perhaps I might confess that I also feel troubled to see the results of Terry's experiments, year after year, indicate so clearly that every chemica fertilizer he undertakes to use does just no good at all. I really wish we could put Terry on some sort of soil where fertilizers *would* avail. But I am afraid that, even then, he would get such tremendous crops of clover that the fertilizer would be thrown into the shade or into nothingness. And then the thing that troubles me again is, he would not use any sort of fertilizer to get the clover started. Now, T. B. Terry is certainly a great teacher and the *Rural New-Yorker* is also another grea teacher. How in the world can it be that their teachings, or, rather, their experiences, should differ so *tremendously?*

I am somewhat surprised that you should infer that the *Rural* might not speak well o a work that appeared to upset some of its own experience. We are not bigoted in the east It gives us pleasure to record any honest success, and we care not whether that success is reached through our advice or against it. This is a great big country. Soils, climate, and conditions, differ. When Mr. Terry makes his little farm pay without the use of fertilizers we rejoice at it, and are thankful that he ha not only the ability to do so, but the power to tell others about it. Permit me to say that my experience has shown me that fertilizer farmer are more charitable toward those who stil cling to the "old way" of manuring than ou "stable-manure" farmers are toward those who use phosphate.

Our reports of fertilizer farms are true—a true as Mr. Terry's story. Our experience is that nine tenths of those who begin to use fertilizers are "convinced against their will." We can, if you like, show you dozens of men who, by the use of fertilizers, are raising large crops, and making more money than Mr. Terry and every one of them fought hard against the first use of fertilizer—in fact, few of them could see any benefit from the first few applications Please don't be troubled about our fertilizer talk Terry will come to fertilizers before the *Rural* goes back on them. When you see a report of a big yield on fertilizers printed in the *Rural*, please remember that it is not a fairy tale but a fact.

In 1890, $34,038,452 worth of fertilizers were manufactured in the United States. Some o this was undoubtedly wasted, for the reason chiefly, that farmers did not understand their use. Is it not perfectly legitimate for us to attempt to try to educate farmers in this line? Will you not be kind enough to say that a good part of our fertilizer talk (as on page 168) is in the line of *education*, and not a "tremendous puff"? H. W. Collingwood,

Managing Editor of the *Rural New-Yorker*.
New York, March 19.

[Many thanks, good friends of the *Rural*. I confess it will be one of my "happy surprises" when I find I can make chemical fertilizers take the place of stable manure. For instance, a great many times valuable crops in our plant-beds are not pushing ahead as we should like to have them do; or at some stage of their growth they begin to slacken. I can not cover them with stable manure—or, at least, not very well; but if I had some chemical that would do the work it would be worth lots to me. Guano does the work every time; but it is very expensive, and last spring I could not get it; and, besides, the Mapes people use guano largely in manufacturing their fertilizers. Now, I am acquainted with guano, and it does the work every time. Why not use the guano without any mixture? You still advise nitrate of soda, in strong terms. How does it come that nitrate of soda never does a bit of good on any crop for *me?* In fact, I have put it on onions until it did them harm, but it has never done them any good. I am just about trying it once more on tomatoes, as I notice one of the experiment stations is so positive that it does push them. Then, again, there is that great market-gardener, J. M. Smith, of Green Bay, Wis., who says, "Chemical fertilizers have never been of any value to me, either on good land or poor land." Mr. Smith is one of the greatest gardeners in the whole wide world. If he is making a mistake while he is such high authority, he is really doing harm. Then, again, our Ohio Experiment Station report as I have reported in regard to the nitrate of soda. I think I have read almost every thing that has been said in the *Rural New-Yorker* in regard to chemical fertilizers. Yes, I do know that the *Rural* is ready, and always has been, to speak out frankly and give both sides of any vital question.

WATER-CRESS IN THE GREENHOUSE.

About the first of January I told Fred we would try once more to raise water-cress, and we sowed some seed in three or four different places—in the greenhouse that is shaded; in the one across the road, right in the sun; in some hot-beds heated with exhaust steam, and in various other places. The seeds in that little automatic greenhouse across the way came up at once, and, in fact, every seed of every kind I ever tried always grows there. First, the whole greenhouse catches the first rays of the morning sun, and has it all the day unobstructed until sunset; then the sloping sashes on the east side get the last rays of the declining sun. Further, every bed has bottom heat from the exhaust steam going through the tiles. Last, but not least, the automatic hot-water pipes overhead keep the temperature perfectly even, day and night. Well, the little water-cress plants were almost microscopic when they first came up. I watched them and watered them, and enjoyed seeing them show progress every single day. Yes, I could see that the leaves were larger in the morning than they were the night before, and larger in the evening than they were in the morning; and the water-cress plants soon became my special pets; and when they began to crowd a little we transplanted so as to give them room; and I believe they bore transplanting about the best of any plant I ever had to deal with. Why, in two days after transplanting they were sending out little white roots, something like strawberry-runners, at every leaf-joint; and before I knew it they were crowding again. I presume they now occupy a bed about six feet square, and it is such a perfect mass of luxuriance that I believe we can raise water-cress as cheaply as lettuce—may be cheaper still. They have no insect-enemies, and never blight, that I know of; and when they once get well rooted, I believe they make the most astonishing growth of almost any plant we have—that is, if we keep the ground pretty well soaked with water. I do not think we can very well overdo watering. We are now selling it around town in ¼-lb. bunches, for a nickel a bunch. By the way, we now sell water-cresses, radishes, lettuce, and every thing of that sort, put up in little paper bags—just a quarter of a pound in a bag. The paper bag is a protection from the frost during the winter, and keeps the plants clean, free from wilting, and away from the dust in summer time. The paper bags are now made so cheaply that the expense is not worth mentioning; and these paper sacks are ever so much more quickly handled on the wagon than weighing out the stuff as we sell it.

HOW SHALL WE EAT CRESS?

I believe you can use either pepper, salt and vinegar, or all three if you choose; but as vinegar does not agree with me, we just cut the cress up in sprigs, say three inches long, and drop it into a dish of clean water, and this dish is set on the table. Just take out the sprigs, and eat them with your bread and butter, your beefsteak, or with any thing else, for that matter. It is just the nicest relish for nice beefsteak, I think, I ever got hold of; and even with bread and butter it has a wonderfully refreshing flavor, and I have eaten it in quite considerable quantities on purpose to test it, and it agrees with me excellently.

I believe water-cress is now advertised in most seed-catalogs, but there seem to be two varieties of it. Now, please do not get water-cress confounded with what is sometimes called upland cress. The latter is a vile weed, and never ought to have been put in a catalog by any honest seedsman. The reason why I think there must be two kinds of water-cress is, my German friend Ben says they have it in the old country, with fine narrow-leaved foliage; and Mrs. Root, on tasting it, said they used to have it in England, but it also had a finer foliage, with a very narrow leaf, something almost like grass. Now, if any of the friends can mail me a specimen of this fine-leaved water-cress (mind you, I want the kind that grows in running water—not pepper-grass nor upland cress) I shall be very much obliged indeed. I am impressed with the idea that great quantities of genuine water-cress could be sold all over our land, if people once get hold of it. Who will help?

MORE ABOUT ONIONS.

If you would like to see a big crop of onions, plant your sets just early enough in the fall to get them nicely rooted, ground in good order, and, as soon as planted, cover the bed with good fine manure two inches deep. You will have no farther work or trouble with them until they are ready to harvest. The mulch will keep the ground in perfect order.

Chenango Bridge, N. Y. S. M. KEELER.

KIND WORDS FROM OUR CUSTOMERS.

Mr. Root:—I have just received your catalog for Jan., 1894, and would say that I now have 42 hives of your make that is, the Dovetailed hive. I would have no other for my bees. JEROME BARNELL.

Wahoo, Neb., Mar. 7.

I have received my supplies through your branch in San Francisco; and as I have heretofore used other goods I can fully appreciate the value of yours, and you will hereafter have my patronage.

Stockton, Cal., Mar. 16. J. R. GANNIT.

Mr. Root:—I started in something better than the bee business last fall, and it cost me less. It can be bought without money and without price. I am still continuing and advancing in the good way. I am only 28 years old; have a good farm, and am doing very well. I was what they call a "tough case" before I was converted. O. E. GIBSON.

Brant, Mich., Feb. 5.

COMB FOUNDATION.

Made by an

IMPROVED PROCESS ON NEW AND IMPROVED MACHINES

of my own invention, which enables me to produce

The Cheapest.

Prices on 5 lbs. or more will range from 35 to 50c per lb. Send for prices and samples.

W. J. FINCH, JR.,
931 E. Monroe St., Springfield, Illinois.

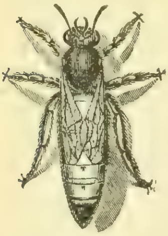
☞In responding to this advertisement mention GLEANINGS.

Control Your Swarms, Requeen, &c.

Send 25 cents for samples of West's Pat. Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. 12 Cell-Protectors, 60 cts., or 100 for $3.; 12 Cages, 60 cts., or 100 for $5, by mail. Address

N. D. West, Middleburgh, Scho. Co., N. Y.

Sold also by all the leading supply dealers.



THE BEST

is what I mean to give my patrons. Drones from selected queens. Breeders are carefully selected from the best. Personal attention and assiduous care given to rearing queens that they may be of the highest type.

Untested, $1.00; after May, 75c; March and April, 6 for $4.75; dozen for $8.50. May and June, 6 for $4.00; dozen, $7.50. Later, 6 for $3.50; dozen, $6.50. Tested, 3-banded, $1.25; 3 to 5 banded, $1.50 to $4.00. Send for circular for particulars. Make money orders payable here.

J. B. CASE, Port Orange, Vol. Co., Fla.

☞In responding to this advertisement mention GLEANINGS.

Good! Good!

Those wishing the finest and best business bees, both for pleasure and profit, should know that Jennie Atchley is headquarters for such queens. I breed both the 3 and 5 banded strains, at the following prices: Untested (March, April, and May), $1.00 each; $5.00 for 6, or $9.00 per dozen. June till October, 75 cts. each; $4.25 for 6, or $8.00 per dozen. I breed my queens in separate yards, and I have as fine Italian bees as there are anywhere. Nuclei and full colonies. I have one straight merchandise rate on bees by express—lowest in U. S. Fine breeders always on hand; 3-banded, $5.00; for straight 5-banded breeders, apply by letter. Also bees by the pound. I guarantee *all* my queens to be good and serviceable, and my fine faultless breeders unexcelled in the world. Safe arrival and satisfaction.

I also have a carload of A. I. Root's Dovetailed hives and Bee-supplies to accommodate my Southern customers. Dadant's foundation and Bingham smokers. Send for catalogue.

JENNIE ATCHLEY, Beeville, Bee Co., Texas.

NOW IS YOUR CHANCE.

To buy *cheap.* Bee-keepers' Supplies, hives, sections, fdn., etc. Write for price list. ROOT'S GOODS.
JOHN NEBEL & SON, High Hill, Mo.

The Triumph Incubator,

Manufactured by Ed. W. Cole, Kenton, O., is the cheapest and best. Eggs for hatching, from stock which won nearly 300 premiums the past year.
Send for Description and prices.

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Tar-Heel Apiaries, Goldsboro, N. C.

1894 **Abbott L. Swinson, Proprietor.** 1894

After ten years' experience I breed only **American Albino Italians** and Golden Italians; 3 and 5 banded bees. Queens, $1.00 to $10.00; bees, $1.00 per lb.; nuclei, 75 cts. per L. frame. 200 bu. "Cook's" Long Staple Cotton Seed at $1.00 per bu., f. o. b. Lint is 1⅝ inches, and brings premium of 2 to 4 cents.

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Trego on Deck

With those five-banded Golden Italian Queens for 1894; $1.00 each. Circular free.
S. F. TREGO, Swedona, Ill.

Notice to Kansas Bee-keepers.

I keep in stock a full line of E. Kretchmer's make of Hives, Sections, and other supplies needed in the apiary, at very low prices. Also Italian bees and queens for sale. **A. W. SWAN, Centralia, Kan.**

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my *Golden Italians.* They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. *Sections, $2. per M.* Dovetailed hives way down.

CHAS. D. DUVALL, Spencerville, Md.

Please mention this paper.

For Sale An interest in iron-manufacturing business. Capital required, $5000. Will take good paper or securities. An excellent trade taught in connection.
L. L. ESENHOWER, Box 331, Spring City, Pa.

BEE-MEN, Get free Price List of Apiarian Supplies.
F. N. JOHNSON, Knoxville, Ill.

Given Brood Foundation,

About five 16½x8½ sheets to the pound, in 10-lb. lots, at 40 cts. per pound.
H. W. FUNK, Normal, Ill.

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Buff Leghorns, Bred from selected stock (Arnold's), the best of layers, hardy and beautiful. Eggs from my best yard, $2.00 per 15. *P. P. Forney, Hogestown, Pa.*

FREE! My price list of pure Italian bees and queens, and white and brown ferrets. Address
N. A. KNAPP,
Rochester, Lorain Co., O.

Colorado Cactus, Known as "*Hen and Chickens;*" red, waxy blossoms. One by mail, postpaid, 25c, or a group of 5 to 7 for $1.00, by express. Grows in any climate. Beautiful ornament. Stamps taken. Address
R. K & J. C. FRISBEE. 172 W. Maple St., Denver, Col.

Golden Wyandottes.

No better birds in America. Cockerel, $5.00. Trio, $7.00. Eggs, $2.00 per setting.
E. D. Keeney, Arcade, N. Y.

Texas Cactus. Small one by mail, postpaid, 25 cts. Large one by express, 25 cts. Grows in any climate. Fine ornament. Stamps taken.
Beeville, Bee Co., Tex. **Miss Leah Atchley.**

PERFECT cream sections, $2.25 per 1000.
POPLAR sections, sandpapered, $3.50 per 1000.
Every thing in the supply line at bottom prices. 30c per lb. allowed on wax, in exchange for supplies. Circular upon application. **I. J. Stringham,**
105 Park Place, N. Y.

For Sale, 50 colonies of bees, mostly Italians and hybrids; nearly all are in Simplicity and Dovetailed hives—3 in American A. Y. BALDWIN, De Kalb, Ill.

EGGS FOR HATCHING Buff Leghorns, $1.50 for 15; Buff Wyandottes, $2.00 for 13; White Plymouth Rocks, $1.50 for 15; White Pekin Ducks, $1.00 for 9.
All A No. 1 stock. **J. S. WARNER, Medina. O.**

Have You seen our Catalog

"Everything for Gardeners"?

It is unlike other Catalogs. Straightforward and truthful descriptions by a practical market-gardener, of the best in **SEEDS.** Tells about growing **$2000 worth of Prize-taker Onions** on an acre, and how to grow **$3000 worth of Celery** on an acre. We sell **Vegetable Plants, Timbrell** and other leading **Strawberries** and **Small Fruits. Trees** and **Supplies** for gardeners. **Danvers Yellow Globe Onion Seed at $1 per lb. True Prize-taker, $2.25.** We send a pkt. of this and of a new **Early Tomato,** smooth, good shape and size, and the earliest, also a pkt. of new **Sensation Lettuce,** with Catalog and several useful leaflets, for only **10c.** Send now.
CHRISTIAN WECKESSER, Niagara Falls, N. Y.

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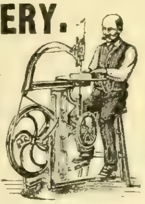

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COMPLETE OUTFITS.

Wood or metal workers without steam power can successfully compete with the large shops by using our NEW LABOR-SAVING MACHINERY, latest and most approved for practical shop use; also for Industrial Schools, Home Training, etc. CATALOG FREE.

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N. Y.

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OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**
1-23a Ottumwa, Ia. South side.

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds
W. Atlee Burpee & Co., Philadelphia, Pa

IN THE FIELD. **GOLDEN QUEENS, NUCLEI.** *CIRCULAR FREE.* **J. F. Michael, German, Darke Co., Ohio.**

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

Seeds Free! ALSO Freeman Potatoes.

YOU CAN HAVE SUCCESS

in Bee Culture a Whole Year; 10 strong eyes of Freeman Potatoes (pure), and 10 packets of flower and vegetable seeds, for **40 CENTS,** silver. This offer is made to boom our circulation.
BURTON L. SAGE, Highwood, Conn.

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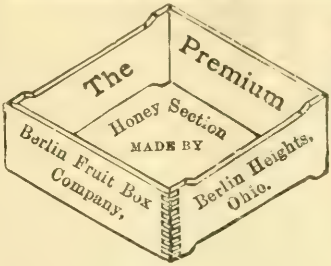
SIX LEADING VARIETIES OF POULTRY. **EGGS FOR HATCHING.**
Orders booked now. Send for descriptive card.
J. S. Mason, Medina, Ohio.

READY TO MAIL. TESTED ITALIAN for $1.25. Untested, $1.00. **QUEENS**
Will be ready in April. Safe arrival guaranteed. Drones and Bees cheap.
J. N. COLWICK, Norse, Bosque Co., Texas.



Send for our new price list of Bee supplies and Fruit packages. A liberal discount allowed on winter orders. Address
BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.
1-10d

Automatic Comb Foundation Mills. **Made by W. C. Pelham, Maysville, Ky.**

BBB'S! If you keep *BEES,* subscribe for the **Progressive Bee-keeper,** a journal devoted to Bees, Honey, and kindred industries. ***50 cts. per year.*** Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address
LEAHY MFG. CO., HIGGINSVILLE, MO.

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VANDERVORT COMB-FOUNDATION MILLS.

Send for samples and reduced price list.
1tfd **JNO. VANDERVORT, Laceyville, Pa.**

APPLES, Ben Davis, Ark. Black, Mammoth Black Twigs, all varieties. Whole root only. Premium World's Fair. Trees, 10c each. On orders of 100 I pay the freight. W. H. LAWS, Lavaca, Ark.
Please mention this paper. 4 7b

GEO. W. HUFSTEDLER,
Breeder of 5-Banded Italian Bees and Queens.
Untested, 75 cts. Tested, $1.00 each.
CLARKSVILLE, RED RIVER CO., TEXAS.

PATENT WIRED COMB FOUNDATION
Has No Sag in Brood-frames.
Thin Flat-Bottom Foundation
Has no Fishbone in the Surplus Honey.
Being the cleanest, it is usually worked the quickest of any foundation made.
J. VAN DEUSEN & SONS,
12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis.

Queens, Nuclei, Colonies **Send for Price List.** Address **S. D. McLEAN, Columbia, Tenn.** **1894**

"G & B" Web-Wire Fencing

MEETS THE POPULAR DEMAND FOR

A Harmless Fence at a Reasonable Cost.

HUNDREDS OF MILES IN USE

BY SATISFIED CUSTOMERS WHO HAVE FOUND IT

PERFECTLY SAFE for horses and cattle.
SUFFICIENTLY STRONG for vicious stock.
A SURE INCLOSURE for sheep and hogs.
A RELIABLE PROTECTION against dogs for sheep.
A SATISFACTORY FENCE to property-owners along railroads.
A FENCE COMBINED for both large and small animals.
A COMPACT MATERIAL for portable corrals.
Excellent for grapevine trellises.

Animals will not bend it to crawl under or climb over, or loosen it from the posts.

"G & B" WEB-WIRE FENCING is made of the best quality **Heavy Galvanized Steel Wire** (No. 14 in the meshes, No. 13 in the selvages) woven into diamond-shape meshes by automatic machinery, insuring a regular and smooth fabric, strengthened by **three-strand rope selvages** at both sides.

The 3x6 inch Mesh is suggested for sheep-enclosures; the 4 x 8 for cattle and hogs, and the 5½x 10½ for a very low-priced fence for any purpose named.

PRICE IN FULL ROLLS, 20 RODS EACH.

3 x 6 inch Mesh.		4 x 8 inch Mesh.		5½ x 10½ inch Mesh.	
WIDTH.	PRICE.	WIDTH.	PRICE.	WIDTH.	PRICE.
26 in.	Rod, 45 c	26 in.	Rod, 38 c	28 in.	Rod, 31 c
32 in.	Rod, 52 c	34 in.	Rod, 44 c	36 in.	Rod, 38 c
38 in.	Rod, 60 c	42 in.	Rod, 51 c	47 in.	Rod, 44 c
50 in.	Rod, 72 c	50 in.	Rod, 57 c		

All widths put up in bales 20 rods (330 feet) long.

A higher price charged for lengths shorter than a full bale. Shipped direct from Chicago or New York.

What we wish to call your attention to especially is the following list of pieces and short rolls which we can sell, to close them out, at *less than full-roll prices*. In this list are some full rolls and pieces of sizes which the factory have discontinued making, and for that reason they offer them at a sacrifice to clean up the stock of odds and ends.

The above, you notice, is woven from galvanized wire, while you will find the most of the following list is 4x7-inch mesh, galvanized after being woven, and on that account very much superior, and more expensive to make. It formerly sold for about double the prices named below. It has also one number heavier wire in the meshes than the rest, being No. 13 wire throughout. All other sizes are made of No. 14 galvanized wire, woven in the meshes, and a 3-strand rope of No. 13 wire for selvage, except the 4x8, which has No. 10 wire selvage.

The wide fencing is designed to be put up alone, while the narrow widths are used at the top or bottom in connection with barb-wire or other strand fencing. Much narrow is used at the bottom of posts for hogs and sheep, while for horses and cattle it is often used at the top of posts in place of a board or rail.

All the fencing in the list, except the last few lines, is in stock in Chicago and New York, and shipments will be made from these points. That you may know what is in stock at each place we have inclosed within brackets [ ] all the stock in New York; and what is not so inclosed is at Chicago. The length of the pieces is given in feet, and the price per foot as well as per rod. This fencing is usually sold by the rod; but for convenience in ascertaining the cost of each piece we have given also the price per running foot, and you have simply to multiply the combined length of the pieces you require by the price per foot to get the cost. We get an additional discount if ordered in lots of 10 pieces; and, therefore, if you can use so much you can secure this fence at a price which is below what new regular stock in above list costs us at wholesale. The freight from New York to Chicago in 100-lb. lots or more is only from 2 to 5 cts. per rod; so if any of our western customers desire some of the New York stock they need not refrain from ordering on account of freight charges.

In the following table the width in inches is given in the first column; size of mesh in second; price per rod in third; price per linear foot in fourth, and a list of the pieces, with length in feet, in fifth.

Inches.		Price.		List of Pieces, and Length in Feet.
Wide	Mesh	Rod	Ft.	Multiply by price per foot for cost.
26	4 x 11	33	2	10 bales, 20 rods (330 ft.) each.
38	"	46	2¾	11 bales, 20 rods each, and 132, 91.
50	"	.55	.3⅓	12 bales, 20 rods each, 100 and 65 [330, 330, 330]
25	5 x 11	.33	.2	132 58; of 36 in. at 2¼ c.; 52, 43, 38.
47	"	.44	.2⅔	230, 60, 38, 35.
14	4 x 7	.27	.1⅔	330, 330, 206, 108 [198].
18	"	33	.2	327, 32 [145, 105]; of 22 in. at 2 c., 100 [297].
26	"	37	2¼	102 35 10 [148, 110, 95, 59 50].
30	"	41	2½	330, 330, 144, 50, 25, 25 [188].
34	"	.44	2⅔	90 80, 48, 44, 43, 25 17, 14 [45, 7 bales, 330 ft.]
38	"	49	.3	44, 29, 20, 13, 10 [183].
46	"	53	3¼	330, 15 [330, 330, 146, 40].
50	"	57	.3½	[183], 25 ft., 42 in., at 3 cts. per ft.
62	"	66	4	[330, 317, 78].
66	"	70	4¼	[330.]
14	4 x 8	27	1⅔	[1 bale, 20 rods (330 ft.) each].
22	"	33	.2	[9 bales, 20 rods (330 ft.) each].
42	"	.50	3	[3 bales, 20 rods each, and 135 ft.]
26	3 x 6	.45	2¾	125, 21 [150, 150, 101].
32	"	.50	.3	258, 198; of 44 in., 165, 42, at 4 cts.
38	"	.58	.3½	81, 48, 32, 19, 14, 11.
50	"	72	4⅓	38, 28, 12.
				ON HAND HERE AT MEDINA THE FOLLOWING:
14	4 x 7	.27	1⅔	166, 52, 35, 23.
22	"	.33	2	107, 68, 35, 17, 15.
30	"	41	2½	52, 47, 36, 33, 30, 29, 19, 18, 13.
34	"	.44	2⅔	43, 37, 34, 25, 24, 23, 18.
42	"	.50	3	68, 23, 12, 10, 8, 6.
46	"	57	3½	82, 62, 60, 50, 44, 22, 22, 12, 11, 5.
18	8 x 13	25	1½	68, 36 in., 200 ft. at 3 c.; 45 in., 247 ft., 3¾ c.

In lots of 5 pieces, 5 % off. Not less than 10 pieces in one order, 15 % off from above prices; 20 pieces or more, 20 % off from prices in this last table only. Staples, 1¼-in., 5 cts. per lb

WIRE NETTING.

SHORT ROLLS AT FULL-ROLL PRICES OR LESS.

We have the following lot of wire netting of various sizes and widths in short or odd-length rolls Very often a person wants a piece and can not bu it cut from a full roll without paying double price You may be able to find in this list just what yo need, or very near it. Even if you want more tha a full roll you will find the prices at which we offe these to be in most cases less than full-roll price.

Of 2-inch mesh No. 19 wire, we have the followin remnants and short rolls at ⅗ c per square foot The figures at the left give the width in inches, an the other figures give length of each piece in feet Multiply this by the width in feet, then take three fifths of the result to find the price of each piece.

12	15, 24, 35 36, 41, 70, 74, 86 88, 89 100, 130, 130, 135, 134.
18	36, 60 135, 138.
24	28, 46, 51, 58, 60, 69, 78 98 98, 103, 110, 119, 144.
30	45, 60, 64, 65, 70, 91, 95, 100, 107, 123, 140, 144, 146, 148.
36	9, 15, 17, 17 18, 19, 19, 19, 23, 24, 24, 25, 26, 30, 31, 38, 40, 40, 40, 42, 47 49, 50, 50, 50, 52, 53, 54, 55, 58, 60, 60, 60, 64, 65, 67 70, 72, 73, 74, 82 82, 82 83, 83, 83, 84, 86, 86, 87, 89, 90, 90, 92, 93 94, 96, 96, 96, 99, 100 100, 100 100, 100, 100, 102, 102, 102, 102, 105, 105, 107 114, 115, 116, 116 116, 118, 120, 120, 122, 124, 124, 128, 129, 134, 140, 141, 141, 142, 145, 145 145 146, 147, 147, 147, 148.
42	51, 85, 125, 131.
48	12, 20, 24 29, 32, 35, 40, 50, 51, 52, 58, 62, 67, 68, 73, 75, 75, 75, 80, 82 83, 83, 84, 86, 87, 94, 96, 98, 100, 104, 108, 114, 113, 119, 119, 122, 123 123, 124, 125, 128, 131, 132, 134, 135, 138, 138, 138, 140, 140, 140, 143 144 144, 144, 144, 144, 144, 145, 145, 145, 145, 146, 146, 146, 148, 148.
54	72, 88, 88, 143.
60	10, 13, 19, 20, 32, 34, 36 72, 72 78 81 81, 89, 91, 92 94, 103, 107, 108 110, 110, 118, 119, 120, 122, 126, 130, 134, 136, 138, 139, 139 142, 144, 146
72	20, 26 29, 30, 38, 40 40, 42 47, 48, 54, 58, 60, 61, 62, 64, 72, 75, 81, 82 85, 85, 87, 100, 100, 100, 108, 112, 119, 120, 123, 124, 127, 129, 130, 138 144, 144, 144, 148.

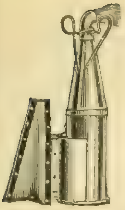
Of 2-inch No. 20 we have the following pieces at one-hal of a cent per square foot. Arrive at the price in precisely th same way as above, taking half of the number of square fee instead of three-fifths, to get the price in cents.

12	42, 47, 102, 103, 124, 134.
24	20 68, 94, 111, 114, 116, 128.
30	129 140.
36	35, 36, 38, 39, 40 40, 41, 50, 79, 81, 88, 91, 94, 100, 100, 103, 103, 109, 119 120, 122, 126, 126, 128, 128, 128, 128, 134, 136, 136, 140, 144, 146, 146, 147
54	145.
60	17, 20, 41, 46, 130, 136, 139, 144, 144.
72	21, 38, 44, 45, 58, 70, 75, 76, 79, 100, 100, 121, 128, 137, 139, 145.

In the following list we give first the size of mesh; next, the number of wire; next, the width in inches; then the length in feet, and, finally, the price of the whole piece, so you will have no figuring to do.

1¼ in., No. 19, 34 in x 126 ft., at $4 25, 36 in. x 48 ft., at $1.60.
1¼ in., No. 19, 48 in. x 78 ft., at 3.50; 48 in. x 80 ft., at $4.20.
1½ in., No. 16, 30 in. x 70 ft., at 3.15; 42 in. x 34 ft., at $2.10.
1½ in., No. 16, 48 in. x 92 ft., at 6.50.
2 in., No. 15, 18 in. x 73 ft., at 1.65; 18 in. x 87 ft., at $2.00.
2 in., No. 15, 18 in. x 55 ft., at 1.35; 54 in. x 122 ft. at $8.00.
2 in., No. 15, 60 in. x 20 ft., at 1.60; 72 in. x 33 ft., at $3.00.
2 in., No. 15, 72 in. x 33 ft., at 3.00.
2 in., No. 15, 72 in. x 36 ft., at 3.20; 72 x 58 in., at $3.80.
2 in., No. 16, 72 in. x 58 ft., at 3.80.
3 in., No. 14, 72 in. x 70 ft., at 6.20; 72 in. x 100 ft., at $8.80.

In lots of 5 pieces, any one or assorted kinds, deduct 5%; 10 pieces, 10%; 25 pieces or more, 15%. Bet- name a second or third choice in case your first may be gone. **A. I. ROOT, Medina, Ohio.**



Prices of Bingham Perfect Smokers
AND
Bingham & Hetherington Honey-Knives.

6 Doctors, 3½ inch....	$7 00	1 per mail....	$1 95	2 per mail, at one time....	$3 50
6 Conquerors, 3 inch..	6 00	1 "	1 75	2 " "	3 00
6 Large, 2½ inch......	4 50	1 "	1 25	2 " "	2 25
6 Extra, 2 inch........	2 75	1 "	1 00	2 " "	1 90
6 Plain * 2 inch........	2 40	1 "	70	2 " " ..	1 30
6 Wonders, 1¾ inch...	2 00	1 "	65	2 " "	1 20
6 Knives...............	4 50	1 "	1 10	2 " "	2 10

*The Plain does not have the Coiled Steel Wire Handle, neither the bent Cap for throwing the smoke at right angles. All the others have all our new improvements.

The movable bent cap enables you to change a curved shot to a straight shot instantly, and *vice versa;* throws smoke downward without spilling ashes; adds durability and convenience, and is cheaply replaced if injured. The wire handle is always cool for opening and closing the smoker when refilling with fuel. Sound, dry stove-wood is the best fuel for Bingham smokers. Below is a copy of a letter from the largest producer of comb honey in the world:

Messrs. Bingham & Hetherington.

Gentlemen:—I use the Bingham & Hetherington honey-knife and the Bingham smoker in my business because they are more effective for the purpose than I have yet found in the market.

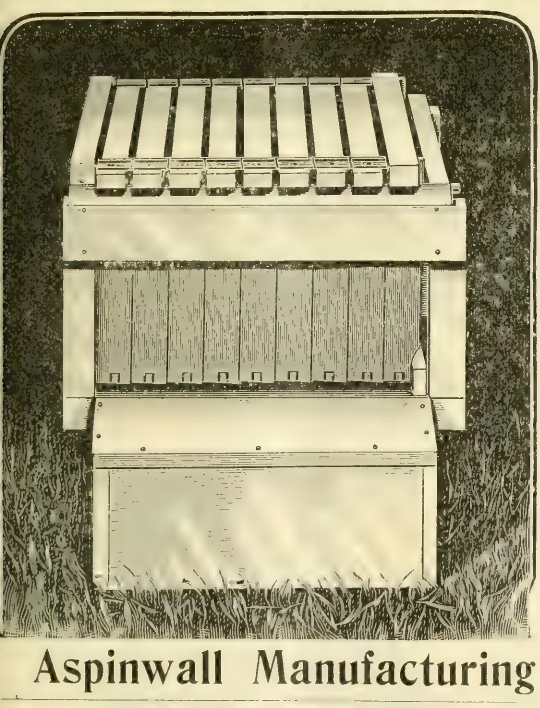
Cherry Valley, N. Y., Feb. 15, 1894. J. E. HETHERINGTON.

T. F. BINGHAM, ABRONIA, MICH.

Gray Carniolans and Five-Banded Golden Italians.

We are the most extensive breeders in America, of those wonderful gray Carniolans—the hardiest, the best of honey-gatherers, and the gentlest bees in the world. Considering all points, we have never found a race of bees (and we have tried them all) that could compare with them. A complete description of this wonderful race of bees will be sent to all who write and ask for it. Bee-keeping friends, give the gray Carniolans a fair trial, and you will be convinced that what we say of them is true.

Our five-banded golden Italians are guaranteed to be the equal of any in this country, as regards gentleness, hardiness, and working-qualities, as we follow the best known methods for producing first-class business queens. Our queen-rearing apiaries are four miles apart, with Lake George between the two races. Prices of queens of either race are as follows: One untested queen, May, $1.25; June, $1.00; July, 75c; Aug., 65c. One tested queen, May, $2.50; June, $2.00; July, $1.50; Aug., $1.25. Prices on large orders, imported and best breeding queens, sent on application. **F. A. LOCKHART & CO., Lake George, N.Y.**



THE

"ASPINWALL."

1. The most perfect Hive ever offered to the public.
2. It has Closed-end Frames, which can be more rapidly handled than any other frame, without killing a single bee.
3. The Top-bars project over the Hive ends, enabling easy and rapid handling of the Frames. This feature favors narrow spaces between the bars, and makes the most perfect non-burr-comb frame extant.
4. They can be manipulated without working with fingers among the bees, or having them daubed with propolis.
5. The hive may be contracted or expanded, as desired.
6. The frames are provided with an improved and rapid method of putting in comb foundation.
7. The frames are L. size. We also make a deep-frame hive L. length.

Send for illustrated circular.

Aspinwall Manufacturing Co., Jackson, Mich.

Eggs Brown and White Leghorn, $1.25. P. Rock, Bl'k Minorca. $1.50. Bl'k Langshan, L't Brahma, Pit Game, Buff Cochin, $2 00 per 13. Fowls for sale. Circular free
Address **GEER BROS., St. Marys, Mo.,**
or, **H. B. GEER, Nashville, Tenn.**

EGGS For Hatching from Prize-winning Stock of Buff Leghorns, score 94, $2.00 per setting of 15 eggs. Silver Wyandottes, Brown Leghorns, and Plymouth Rocks, $1 50
7 8 **B. F. STOVER, ROSCOE, OHIO.**

☞ In responding to this advertisement mention GLEANINGS

SPECIAL NOTICES FROM BUSINESS MANAGER

BUSINESS AT THIS DATE.

Orders are coming at a lively rate, and are being shipped quite as lively. Very few remain unfilled longer than four days after being received. We are running on full time to our full capacity, and have about all we can do to keep orders filled promptly. This we are bound to do at all hazards, even if we have to run over time. Send on your orders for any thing in our line, and we will do our best to serve you promptly with goods that will please you.

BEE-KEEPING IN RUSSIA.

If the demand for comb-foundation machines is an indication, improved bee keeping is on the increase in Russia. Two years ago in March we sent over there a shipment of eight foundation-machines; last year the number was thirteen, and we are now executing an order for sixteen machines. We have recently sent two 14-inch mills to Spain; some 8 or 10 to Australia; quite a number to France, Germany, Austria, and some to England.

SHORT NOVICE HONEY-KNIVES.

We have received two and a half dozen of Novice honey-knives, with blades from one to two inches shorter than the regular length of seven inches. These will be just right for uncapping shallow frames, and very convenient for scraping frames and hives, transferring, etc. We offer them for 50c each, or 55c by mail postpaid. This is two-thirds the price of the regular Novice honey-knife.

MAPLE SUGAR AND SYRUP.

Owing to a very unfavorable season, the maple product of this section is only about a third the usual amount We are obliged, therefore, to advance 10 cents per gallon on the price of syrup quoted in this department in last issue, making the price $1.10 per gal., or $1.00 in 10-gallon lots or more. Sugar will be 10c per lb. for first grade; 9c for 2d, and 8c for third; ½c per lb. off in 50-lb. lots, and 1c off in barrel lots of 300 lbs. We will not guarantee to fill all orders at these prices, but think we can do so.

SPRAY PUMPS AND SPRINKLERS.

Those interested in these goods will find them listed again on the inside cover pages of this issue. I hardly think you will find pumps of equal value offered elsewhere for the low prices we name. Those who wish to buy in quantities, or act as agents, will do well to write for our wholesale prices, stating which pumps they desire prices on, and, if possible, the number wanted. As we have bought for this season nearly a thousand pumps and sprinklers, we are prepared to give bottom prices.

STERESCOPIC VIEWS.

A manufacturer of sterescopic views in Philadelphia, Pa., has become interested in bees, and we have traded him some supplies for views We have secured a lot of views of the Centennial Exposition, some four hundred different subjects, mounted on fine cards, 4¼ x 7 inches, which we can sell at 3c each, 30c per dozen. By mail, 4c each or 35c per dozen. We can, for a 2-cent stamp, mail you a 66-page catalog of oriental, foreign, and American views, giving a list of subjects, with number to order by. These views, nicely mounted on cards, 3½x7 in., we can mail postpaid at $1.10 per dozen, or $12.00 per gross, your own selection.

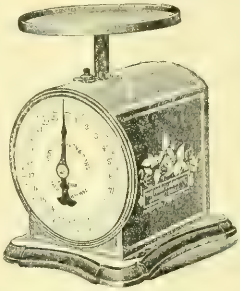
CATALOGS.

We have printed and mailed, since Jan. 1, about one hundred thousand of our catalogs of bee-keepers' supplies, and we haven't got nearly through our list of names yet. We are going to make up a new list of names to mail to during the rest of this year. By means of this list all duplicates will be eliminated, and also names of those no longer interested in bees. In sending the last catalog on the old list we have inclosed in each one a card to be returned, filled out with address of sender, if further catalogs are desired. We want to send at least once each year one of our catalogs to every one interested. Readers of GLEANINGS will, of course, be in the new list; and we want, besides, the names of all bee-keepers. Our new list of names will be so arranged, each on a card by itself, that we can always keep it fresh, and containing only the names of those who want the catalog; and we hope to send them one each year.

SPECIAL SECTIONS.

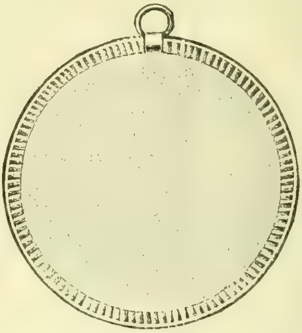
Of the special sections at special prices offered in last issue, we are sold out of the regular size, 1⅞ wide, both here and at Bankers, Mich. We do not have enough No. 2 to supply the demand. If any of those who order 1⅞-inch cream or No. 2 can use 1 5/16 or 1 13/16 inch instead, or a part of each, we can fill their orders with these widths, of which we still have a goodly quantity. We will let the 1 13/16 go in at cream-grade price, $2.00 per 1000, though they were made for No. 1 white, two years ago. What few 1⅞ inch creams we get in making No. 1 will be, from now on, sold at regular catalog price, 50c per 1000 less than white.

NEW FAVORITE FAMILY SCALES.



The manufacturers of the Favorite Family scale have recently improved this convenient household article by making the case of sheet steel instead of cast iron. Either size, 12 or 24 lb., boxed for shipment, weighs now only 5 lbs. The adjoining cut shows the scale. You notice, right under the platform is a screw. By turning this screw you can take off the tare for any vessel placed on the scale, bringing the pointer to 0. Price, 12-lb., $2.25; 24-lb., $2.50.

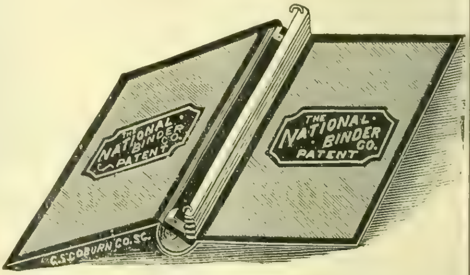
AUGITE STOVE-MAT.



We supposed the last time we fixed prices on stove-mats that it would not be necessary to go any lower; but here we come again, with another reduction. The mat we handle is the original Augite, superior to any other, and is still first quality.

Prices hereafter will be 15c each, postpaid; 3 for 40 cts.; $1.35 a doz., postpaid. By express or freight, at your expense, or with other goods, 10c each; 3 for 25; 75c per doz.; 6 doz., $4.25; 12 doz. for $8.00. Send on your orders.

GLEANINGS BINDERS.


THE NATIONAL BINDER CO. PATENT
THE NATIONAL BINDER CO. PATENT
C.S.COBURN CO. SC.

As promised in last issue we present above a cut of the binder we have adopted for GLEANINGS. It has a half-oval block of wood bound into the back so that it shows in the case as a full volume, whether it has one or more numbers in it. You notice there are 24 steel strips, one for each number in the volume. Each number is slipped over a strip, as it comes to hand, in a moment's time, without mutilation; and any number can be removed and replaced instantly without disturbing the rest. They are neatly lettered in gold-leaf, "GLEANINGS IN BEE CULTURE" on the front side and on the back. We have them all cloth or with leather back and corners. Price, all cloth, 65 cents each. Cloth and leather, 75 cents each. By mail, 17 cents extra for postage.

SHORT ROLLS OF WIRE NETTING.

We have received from the factory another lot of remnants and short rolls of wire netting which we sell at full-roll price or less. We have added this to our stock list which appears on another page, in connection with the announcement of web-wire fencing. There are a few pieces not listed there which are as follows:

3 rolls of 3-inch No. 19 netting 6 ft. wide, at $3.25.
1½ in., No. 19, 2 ft. x 48 ft., at .75; 3½ ft. x 32 ft., at .80.
3 x 12 ft. at .30; 3 x 47 ft. at $1 10; 3 x 86 ft. at $2.00.
4½ x 20 ft at .70; 5 x 19 ft. at .75; 6 x 26 ft. at $1.30.
1½-inch No. 18, 3 x 57 ft. at $1 60; 3 x 64 ft. at $1.75.
1½ inch No. 16 3 x 11 ft. at .55; 3½ x 16 ft. at $1.00.
4 x 24 ft. at $1.65; 1¼-in. No. 20 1 x 88 ft., at $1 00.
1¼-in. No. 19 2½ x 19 ft. at .50; 2½ x 36 ft. at $1.00.
3 x 129 ft. at $4.25; 6 x 102 ft. at $6 75.
1¼ in. No. 18, 1 x 13 ft. at .15; 2 x 38 ft. at .95; 6 x 11 ft. at .80.
¾ in. No. 20, ½ x 50 ft. at .90; 1 x 65 ft. at $1.25.
¾-in. No. 18 4 x 25 ft. at $1 00.
½-in. No. 19, 2½ x 52 ft. at $1.30.
½-in. No. 19, 28 in. x 51 ft. at $1.20; 28 in. x 71 ft. at $1.60.

The last four pieces are slightly defective, but the prices at which they are offered is less than one-fourth what new goods would cost in full roll lots. The prices on the other items are the wholesale jobbing rate of full rolls in lots of 25 or more, and therefore a rare bargain.

SECOND-HAND FOUNDATION-MILLS.

We offer at special low prices the following list of second-hand foundation-mills which have accumulated on our hands during the past few months. If any desire a sample of foundation made on these mills before ordering, we shall be pleased to mail it on request stating the kind or number of mill that you want.

One 6-inch hex., No. R; price $10.00. This mill is in good condition, and just right for surplus foundation 9 to 10 feet to the pound.

One 6-inch hex., No. Y; price $10.00. This is a good mill, suitable for surplus foundation 10 feet to the pound.

One 6-inch hex., No. A A; price $10 00. This is in good condition, and suitable for surplus foundation 10 feet to the pound.

One 6-inch hex., No. 1461; price $9.00. This is in fair condition, and will make foundation 10 feet to the pound.

One 10-inch round-cell No. F F. Price $15.00. This is a late style and make of mill, practically equal to a new one.

One 12-inch hex., No. 1532. Price $22.50. This is almost a new machine, and a bargain for the price.

All the above have the latest style of frames; the following are old style:

One 10-inch round-cell heavy shallow wall, No. EE. Price $8.00. This is an old-style mill little used, in fair condition

One 10 inch round-cell heavy shallow wall, No. GG. Price $8.00. This is an old-style mill, almost new, but a fair machine for the price at which we offer it.

One 10-inch round cell, heavy, No. W; price $10.00. This is suited for only heavy foundation, and will answer nicely for that purpose.

One 9-inch Dunham, round cell, heavy; price $8.00. This mill is in fair condition, and is suited for heavy foundation only.

One 10-inch Pelham, almost new, and of the latest pattern, for heavy brood foundation only. Will sell for $9.00.

OUR STRAIN OF MAMMOTH SWEET CORN.

I am sorry to say that we are again sold out, with the exception of a little we have saved for half-pint packages. Price, per half-pint, 10 cts. If wanted by mail, add 3 cts. for postage. We can, however, furnish any quantity of mammoth sweet corn by purchasing of other seedsmen. It may be as good as our own strain; but judging from past experience we fear it will not prove so. We can furnish this latter at the usual price—15 cts. per quart; 75 cts. per peck, $2 75 per bushel. We mention this because, if you order it, we wish to have it understood that it is not of our own raising, and of the strain that we have been furnishing our customers for more than ten years past.

WHITE TOP ONION-SETS.

We have finally succeeded in getting a bushel, but they cost us $7.50. We are going to plant them, every one, for big onions, and then next year we shall plant the big onions for sets. Here is what we find in regard to them, in Vaughan's catalog:

> "The onions are ready very quickly for table use, and the matured bulbs are very sweet and mild. Their silvery-white appearance and globe shape make them very attractive if wanted as mature bulbs for market purpose. The late Prof. Cassidy, of the Colorado Agricultural College, said this was the finest, earliest, and best onion for the market gardener as well as for home use."

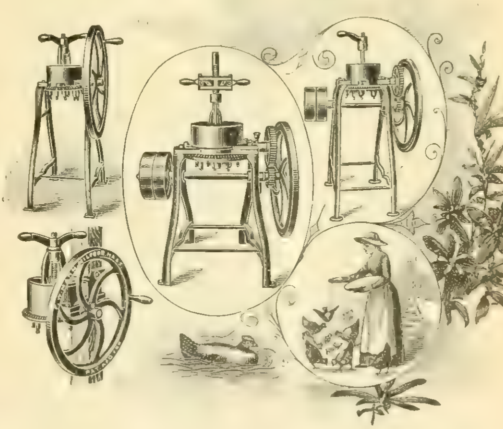
When we bought the bushel we did not intend to sell any; but if any of the friends, however, are anxious to try them we will furnish 5-cent packages containing about a dozen sets. We really hope they will turn out equal to the above. The sets themselves are very handsome little white onions.

WATER-CRESS SEED.

The kind we are using in our greenhouse we can furnish you at 5 cts. per packet, or 40 cts. per ounce. The seed is so small that a 5-cent packet will probably furnish you all the seed you want to start with.

MANN'S GREEN-BONE CUTTERS.

We have been selling for several years Wilson's bone-mills for grinding dry bones for poultry. Green bones, with scraps of meat and gristle, contain more valuable matter for poultry, when properly cut up. You can generally buy dry ground bone for poultry, in feed-stores, cheaply; but green bones have to be cut up as used. It is, therefore, more necessary to have a machine that will cut up all such bones fine enough for poultry. The machines shown in cut below are probably the best thing made for this purpose. They are so well adapted to the purpose that the manufacturers warrant every machine to cut dry or fresh bones with the meat, gristle, and all, without clog or difficulty, or money will be refunded; and for the hand cutters, they promise to furnish without charge all parts which may break while the machine is in actual use during two years following the purchase of the cutter. Send for circular giving full particulars. We have put in a small power machine, and can recommend them. The hand machines are shown at the left. The upper one is No. 2, which we can furnish for $18.00, and the lower one No. 6, for $15.00. No. 2 weighs 142 lbs., and No. 6 98 lbs. They are shipped direct from factory in Milford. Mass.



No. 10, small power cutter, 174 lbs.	$25.00
" 14, large " " 426 "	75.00

CROSSMAN'S BEAUTIFUL GOLDEN QUEENS

Are bred from the very best 5-banded stock, and are guaranteed to give you satisfaction.

Untested, $1.00 each; one-half dozen, $5.00; $9.00 per dozen. Tested, $1.50. Select tested, $2.50 each. Send for Price List.

W. P. CROSSMAN,
BOX 141, DALLAS, TEX.

Please mention this paper.

BEES FOR SALE.

50 colonies of Italians, $5.00 per colony in chaff hives; $4.00 in Simplicity. **JOHN F. NICE,**
329 Maynard St., Williamsport, Pa.

BEES! BEES! BEES!

If you contemplate buying bees and queens the coming season, write to **LEININGER BROS.** for prices which will suit you. **FT. JENNINGS, O.**

For Sale for 1894. Italian bees and queens, cheap for cash. Address
OTTO KLEINOW, 118 MILITARY AVE., DETROIT, MICH.

BIG DISCOUNT on Foundation and Sections. Thin foundation, 50c per lb.; brood, 40c. No. 1 sections, $2.75 per M. Every thing cheap. Price list free.
7-17eoi ***E. H. TRUMPER, BANKERS, MICH.***

ITALIAN QUEENS.

Both three and five banded. Tested, $1.50; three for $4.00. Extra select breeders, $2.00; three for $5.00. Untested, $1.00; three for $2.50; six for $5.00; twelve, for $8.00. Safe arrival guaranteed or money refunded. Orders booked now, and pay when you want queens. ***C. F. BECKEY,***
MANITOU BEACH, LEN. CO., MICH.

☞In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, FOUNDATION. Price List Free. A Full Line of **SUPPLIES** for the Bee-keeper.

GEO. RALL, Frenchville, Tremp. Co., Wis.

EGGS For Hatching. S. C. B. Leghorns, Silver Wyandottes, B. and W. Minorcas P. Rocks, Langshans, $1.00 per 13; Y. Wyandottes, I. Games, Red Caps, S. S. Hamburgs—Eggs, $2.00 per 13. No circular. AUGUST GOETZE & SON.
3822 WOOD ST., WHEELING, W. VA.

Please mention this paper.

WE WILL PREPAY

Freight charges on orders for Root's polished sections, and 16 section white basswood shipping cases, to be shipped from factory to points within 300 miles, in lots of 5000 and 200 or over respectively. Send for catalog. **B. WALKER, Evart, Mich.**

☞In responding to this advertisement mention GLEANINGS.

GOLDEN QUEENS

From Texas. My bees can not be surpassed for business, beauty, and gentleness. Safe arrival and satisfaction guaranteed. Untested queens—March, April, and May—$1 each. *150* fine Tested Queens for early orders, $1.50 each. Order early. Send for price list.

J. D. GIVENS, Box 3, Lisbon, Tex.

☞In responding to this advertisement mention GLEANINGS.

WARRANTED QUEENS.

Why buy *untested* queens and take your own risk of pure mating, when I warrant every one of my queens to be purely mated? Look over the ads. and see how few *dare* do this. Warranted Golden Italian queen, $1.00; six for $5.00, ready about May 1st. Safe arrival and satisfaction guaranteed.

S. F. TREGO, Swedona, Illinois.

I Will Exchange

For your name and address, my pamphlet "How I Produce Comb Honey," and catalog of Chaff and Dovetailed hives, T Supers, Sections, Foundation, and every thing needed in the apiary. First-class goods, and prices reasonable.

Geo. E. Hilton,
Fremont, Mich.

☞In responding to this advertisement mention GLEANINGS

DID YOU KNOW

That I have the LARGEST STOCK of **BEE-KEEPERS' SUPPLIES** IN NEW ENGLAND?

Consisting of Dovetailed, Simplicity, and other styles of Hives. My brand of XX white thin Foundation, and Polished one-piece Sections, are the nicest on the market.

A full line of every thing needed in the apiary at prices to suit the times.

BEES, QUEENS, and NUCLEUS COLONIES of my old reliable strain, at prices way down.

Send for 34th Annual Catalogue before you buy your stock, remembering the best is always the cheapest.

Address ***W. W. CARY,***
4tf ***COLRAIN, FRANKLIN CO., MASS.***

☞In responding to this advertisement mention GLEANINGS

GOLDEN ITALIAN QUEENS

I will have Untested Golden or 5-banded Italian queens, at 75 cts. each; the best of queens. Also Untested Queens from Imported stock, at 75 cts. each. Also Tested Italian Queens raised last season from Imported mother, at 90 cts. each in April. Will have untested queens ready to mail May 1st.

W. A. COMPTON,
Lynnville, - - Tennessee.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

BEES FOR SALE.

I will sell hybrid or black colonies of bees, in lots of (20) twenty at ($3.00) three dollars each, to be shipped about the 10th of May. Each colony will contain 8 combs with brood and honey. Address

T. E. McLEAN, THOMPSON'S STATION, WILLIAMSON CO., TENN.

I Will Exchange

For your name and address, my pamphlet "How I Produce Comb Honey," and catalog of Chaff and Dovetailed hives, T Supers, Sections, Foundation, and every thing needed in the apiary. First-class goods, and prices reasonable.

Geo. E. Hilton,
Fremont, Mich.

Eggs for Hatching,

From choice stock of S. C. B. Leghorns, at $1.00 for 15 eggs.

LEININGER BROS., Ft. Jennings, O.

Root's Goods at Root's Prices.

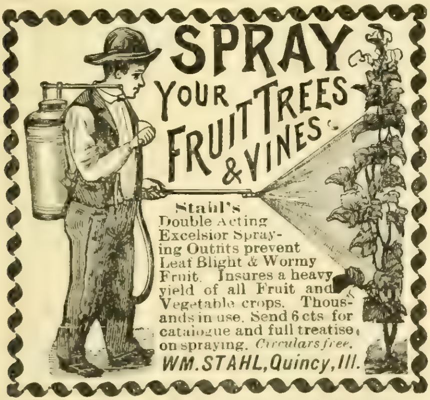
We have the best shipping-facilities in the Northwest. We can save time and freight by shipping direct on some 40 or more railroads, without change of cars, which saves handling, and goods are much less liable to be broken or smashed.

Root's 1893 No. 1 white sections, 4¼x4¼x7 to foot, 1⅞, and 1 15/16, at $2.50 per 1000. No. 1 cream, 4¼x¼x1⅞ and 1 15/16, $2.00 per 1000.

Write for price list and what you want.

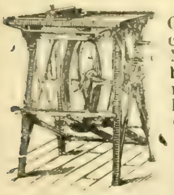
H. G. Acklin, 1024 Mississippi St.,
St. Paul, Minn.

Northwestern Agent for A. I. Root's Bee-keepers' Supplies.



Stahl's Double Acting Excelsior Spraying Outfits prevent Leaf Blight & Wormy Fruit. Insures a heavy yield of all Fruit and Vegetable crops. Thousands in use. Send 6 cts. for catalogue and full treatise on spraying. *Circulars free.*

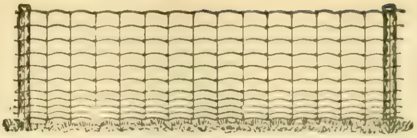
WM. STAHL, Quincy, Ill.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.

eoitf Please mention this paper



"DO YOU SEE THAT HUMP?"

Not on "The Page," it never has 'em, but on that **dead wire** fence. It was caused by an animal running into it. The animal "didn't mean to." The fence "couldn't help it," but the hump is there and it is an eye sore to the owner. He looks across the road at his neighbor's non-humpable, anti-sagable, Page fence and admits that Elasticity "is in it" after all.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

BEES QUEENS

Smokers, Sections, Comb Foundation, And all Apiarian Supplies cheap. Send for FREE Catalogue. **E. T. FLANAGAN, Belleville, Ill.**

Gray Carniolan Queens and Bees,

Bred the coming season by the undersigned. As these bees are a hardy race, so as to winter with but small loss, they are well adapted to our cold climate; and as they breed up better than any other race of bees known, they become of much importance to both Northern and Southern bee-keepers. Send for circular to *JOHN ANDREWS,*
Pattens Mills, Wash. Co., N. Y.

BEE SUPPLIES RETAIL AND WHOLESALE

Every thing used in the *Apiary*. Greatest variety and *largest* stock in the West. New catalog, 70 illustrated pages, free.

Discounts to Dealers.

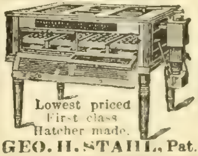
E. KRETCHMER, Red Oak, Ia.

☞In responding to this advertisement mention GLEANINGS.

World's Fair Medal

Awarded my *Foundation*. Send for *free samples*. Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free* Illustrated Price List of every thing needed in the apiary.
Bell Branch, Mich. M. H. Hunt.

HATCH CHICKENS BY STEAM WITH THE IMPROVED EXCELSIOR INCUBATOR.



Lowest priced First-class Hatcher made.

Thousands in Successful Operation.
SIMPLE, PERFECT, and SELF-REGULATING.
Guaranteed to hatch a larger percentage of fertile eggs, at less cost, than any other Incubator. Send 6c. for Illus. Catalog. Circulars Free.

GEO. H. STAHL, Pat. & Sole Mfr., Quincy, Ill.

Please mention GLEANINGS. 21 8db

Cash for Beeswax!

Will pay 23c per lb. cash, or 26c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 28c per lb., or 30c for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio.

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Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—A foot-power or combination circular saw, *must be in good condition*, and cheap. Would also buy some power machinery for making bee-hives, etc. CHAS. M. ORR,
Box No. 1, Dallas, Texas.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange blackberry-sets, red and black raspberry-plants, $8 per 1000, for beeswax.
A. P. LAWRENCE, Hickory Corners, Barry Co., Mich.

WANTED. — To exchange incubators, brooders, and eggs for hatching, of 14 varieties thoroughbred fowls, for first-class thoroughbred poultry.
Address ED. W. COLE, Kenton, O.

WANTED.—150 colonies of bees (L. frame) in exchange for Eureka mowers, Spring-tooth harrows, Steel-lever harrows, Buckeye binders, etc. This machinery is all new and in good shape.
EZRA BAER, Dixon, Lee Co., Ill.

WANTED —To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange Root's goods, at his prices, to be shipped from here or factory, for white comb honey (crop of '94 preferred) in quantity lots. See ad. in another column.
B. WALKER, Evart, Mich.

WANTED.—To exchange 200 - egg incubator and brooder, perfect working condition; cost $40; four fox-hound pups, six months old, best breed in America. for gold watch or safety bicycle.
GEO. K. SCOTT, Turtle Lake, Barron Co., Wis.

WANTED.—To exchange a good 6-inch Vandervort fdn. mill for offers. JNO. NEBEL & SON,
High Hill, Mo.

WANTED.—To exchange one new World typewriter for 15 new-style Dov. hives in the flat; also watch for foundation-mill or extractor.
J. H. MARKLEY, Carbondale, Kan.

WANTED.—To exchange large extractor, yellow Italian queens, fancy nuclei, hives, choice strawberry-plants, for books, groceries, or honey
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

WANTED.—To exchange for any thing I can use, one Columbia Safety bicycle; also bees in 8-frame L. hives and foundation. Want beeswax.
F. H. MCFARLAND, Hyde Park, Vt.

WANTED —To exchange incubator (Stahl's Excelsior 200-egg), photo outfit, 3 Langdon non-swarmers, 40 empty and 35 frames with comb, Otaheite orange, and seed of Begonia Vernon, for offers.
D. B. THOMAS, Boyer, Wright Co., Mo.

WANTED.—To exchange one fine solid 14 K. gold watch, as good as new, used but little, Elgin movement, for one bedroom suite, of antique oak, massive style. Correspondence solicited. Furniture must be new. Watch cost $100.00. Reason for exchanging, I have two watches.
R. H. CAMPBELL, Madison, Morgan Co., Ga.

WANTED.—To exchange Pieper rifle (22 caliber), Remington double-barreled 10-gauge shotgun, 50-in. Champion bicycle, pair Lemaire field-glasses, 36-string rosewood zither, and fine croquet set, for offers. "Sunrise apiary." J. C. WALLENMEYER,
Evansville, Ind.

WANTED.—To exchange Singer sewing-machines or Root's supplies. Want honey, press, and type. THE MODEL STAMP WORKS, Shenandoah, Ia.

WANTED.—To exchange English Beagle hound, female, well broken, and a good hunter, for a shotgun of modern style, or offer.
D S. HALL, South Cabot, Vt.

WANTED.—To exchange 1 treadle Novelty printing-press. chase 10x14, lot of type, rules, borders, etc., valued at $60.00 (sample of work on application), for registered Jersey heifer, section-boxes, Hallock potato-planter, or offers.
J. F. MICHAEL, German, Darke Co., O.

WANTED.—To exchange supplies or bicycle for cane-mill or evaporator. F. C. ERKEL,
Le Sueur, Minn.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge. After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

30 black and hybrid mixed queens to be delivered in May; 25c each. WM. A. SELSER, Wyncote, Pa.

BEE-KEEPERS' Supplies of all kinds cheap for cash.
NOVELTY CO., ROCK FALLS, ILL.

LAWS' Italians surely take the ***lead.*** They are now in every State in the ***Union,*** and in several ***foreign countries.*** Nearly 3000 queens sold, and not a dissatisfied customer; if there is, let him speak. Queens ***yellow all over.*** Fine breeders always on hand; 4 and 5 band, $2.00; straight 5 band, $3.00! Untested, each, $1.00; 6 for $4.50. Satisfaction. Reference, A. I Root. ***W. H. LAWS,***
Lavaca, Seb. Co., Ark.

BEES FOR SALE.

50 colonies of Italians, $5.00 per colony in chaff hives; $4.00 in Simplicity. **JOHN F. NICE,**
329 Maynard St., Williamsport, Pa.

Large number of fine tested **Italian Queens,** reared from imported mothers, ready to mail at $1.00 each. Safe delivery. Money-order office, Decatur. ***CLEVELAND BROS.,***
STAMPER, NEWTON CO., MISS.
Formerly at Decatur. Mention GLEANINGS.

75 COLONIES Italian bees in 8 or 10 frame Dovetailed or Simplicity hives; combs built on wired foundation. Every thing in first-class shape. Bees extra strong. Price $4.00. Hives and frames are Root's make. Safe arrival guaranteed. Money-order office, Fairmont.
L. H. ROBEY, WORTHINGTON, W. VA.

TESTED Italian queens, $1.00; untested, 65 cts.; select tested, $1.50. **C. H. STEWART, Sparta, Tenn.**

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—There is very little choice white comb honey on the market, and it is selling at 15c. Off grades, 12@14. Dark and candied honey very slow at uncertain prices. Extracted honey very slow; sells at 4@7, according to kind, quality, and flavor.
R. A. BURNETT & Co.,
April 7. 161 So. Water St., Chicago, Ill.

MILWAUKEE.—*Honey.*—The demand for choice honey has improved during the past two weeks, yet values are about the same. Yet it is encouraging to see it move. Can quote a fair demand for choice white 1-lb. sections at 13@15; common, 12@13. White extracted, in kegs and barrels, 7@7½, but not selling as well as sections. Beeswax slow at 20@22.
A. V. BISHOP & Co.,
April 3. Milwaukee, Wis.

BUFFALO.—*Honey.*—Honey market remains unchanged. Moderate sales of fancy at 13@14; choice, 11@12; buckwheat, 8@9. Still liberal quantities on hand. We are in hopes to clean up before the season is over. Beeswax, 25@30.
BATTERSON & Co.,
April 7. Buffalo, N. Y.

DETROIT.—*Honey.*—There is but little good honey in the commission houses, and it is selling slowly at 13@15. Extracted, 7@8. Beeswax firm at 25@26.
M. H. HUNT,
April 9. Bell Branch, Mich.

CINCINNATI.—*Honey.*—There is a slow demand for extracted honey, manufacturers buying sparingly. We quote 4@8. Demand for comb honey is slow at 12@15 for best white. Beeswax is in good demand at 22@25 for good to choice yellow.
CHAS. F. MUTH & SON,
April 8. Cincinnati, Ohio.

CLEVELAND.—*Honey.*—Market on honey slow. No. 1 white is selling at 13@14. Beeswax, 22@23.
WILLIAMS BROS.,
April 7. 80 & 82 Broadway, Cleveland, O.

BOSTON.—*Honey.*—Demand light, supply fair. Comb, 12@14; extracted, 5@7c. Beeswax, 25c; demand fair, supply fair.
E. E. BLAKE & Co.,
Successors to Blake & Ripley,
April 9. Boston, Mass.

KANSAS CITY.—*Honey.*—We quote you No. 1 white 1-lb., 12; No. 1 amber, 11. Extracted, white, 6½@7; dark, 5@6. Beeswax, 22@25. Demand for honey only fair; supply good.
HAMBLIN & BEARSS,
April 9. Kansas City, Mo.

KANSAS CITY.—*Honey.*—The demand is light, receipts fair. We quote No. 1 white 1-lb. comb, 14@15; No. 2, 12@13; No. 1 amber, 12@13; No. 2, 10@11. Extracted, 5@7. Beeswax, 20@22.
CLEMONS, MASON & Co.,
April 10. Kansas City, Mo.

Honey, extracted, No. 1 linn in 50 lb. pails, f. o. b. cars here, $2 50 per pail. J. B. MURRAY, Ada, O.

Bees for Sale.

20 colonies in good condition; $5 00 per colony, in simplicity bodies, f. o. b. cars at Avilla, Noble Co., Ind. Address **A. E. SCHUTT**
870 Clinton St., Defiance, O.

WALTER S. POUDER,
162 Mass. Ave. Indianapolis, Ind.
SUPPLIES Standard Goods—Popular Prices—Catalogue Free.
"BUSY BEES"
A book telling how to manage them—10 cts. in stamps; or free to those sending names of 5 bee-keepers

BEES FOR SALE.

Italians, $4 00. Hybrids, $3 50. All in 8-frame Langstroth hives. ***WILLIAM IDEN,***
ETNA GREEN, INDIANA.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

I have one of the choicest flocks of
Brown Leghorns in the State.
Keep no other kind. Eggs, 75c per 15; $1.25 per 30.
B. G. SCOTHAN, Rogersville, Mich.

SECTIONS CHEAP!

Until sold, we will sell the sections listed below in quantities of 500 or more at $1.50 per thousand for creams, and $1.00 per thousand for No. 2. All 4¼ x 4¼ sections, open two sides.

41,000	2 inch	cream.	37,000	2 inch	No. 2.
47,000	$1\frac{3}{4}$ "	"	91,000	$1\frac{15}{16}$ "	"
116,000	$1\frac{7}{8}$ "	"	20,000	$1\frac{7}{8}$ "	"
134,000	7 to ft.	"	87,000	$1\frac{13}{16}$ "	"

253,000 7 to ft. No. 2.

PAGE & KEITH, NEW LONDON, WIS.
☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS. Untested, 80 cts. each; 3 for $2.25. Tested, $1.25. Select tested, yellow to the tips, breeders, $1.50.
eift ***G. E. DAWSON, CARLISLE, ARK.***

Italian Bees and Queens

Ready in May. Queens, $1.00; bees by the lb., $1.00; 1-frame nucleus, $1.25; 2-frame, $2.25. Also Barred P. R. eggs for setting, 15 for $1.00.
Mrs. A. A. Simpson, Swarts, Pa.

Look Here, Bee-keeper!

If you are in need of some bee-supplies, write for catalogue and price list. Every thing sold as cheap as the cheapest. **W. E. Smith.**
Kenton, Hardin Co., O.

WILLIAM HEASTMAN, CITRA, FLA.,
Breeder of the celebrated "Orange-blossom" Italian Bees and Queens.
Untested, 75 cts.

Choice Novelties in
Carnations, Roses, and Seeds.
15 plants for $1.00. Carnation seed, 25c per pkt. Send for catalogue. *S. LENTON,*
Piru City, Ventura Co., Cal.

NOW IS YOUR CHANCE.

To buy ***cheap.*** Bee-keepers' Supplies, hives, sections, fdn., etc. Write for price list. ROOT'S GOODS.
JOHN NEBEL & SON, High Hill, Mo.

Notice to Kansas Bee-keepers.

I keep in stock a full line of E. Kretchmer's make of Hives, Sections and other supplies needed in the apiary, at very low prices. Also Italian bees and queens for sale. **A. W. SWAN, Centralia, Kan.**

Golden Queens from Tennessee.

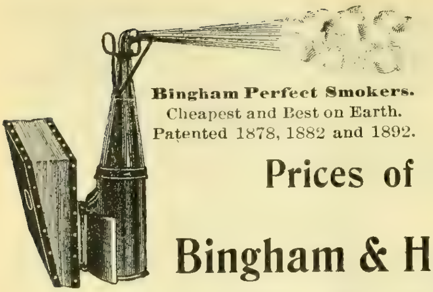
Our stock is better than ever before. We will rear only the Golden Italians this season. Have a few 3 banded tested that we will sell cheap. Golden tested, $1.50; select tested, $2.50; extra select tested, $4.00; 3-banded tested, $1.00. Untested, $1.00.
STEWART BROS., Sparta, Tenn.

Nuclei Ready.

Two frames brood, with 1 lb. bees, $1.00. Size of frames, $9\frac{5}{16}$ deep, $12\frac{1}{8}$ long. Large sales cheaper.
I. D. ALDERMAN, WAY CROSS, N. C.

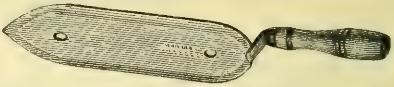
Berry-Plants Cheap.

Gregg raspberry, 70c per 100, or $6.00 per 1000. Red raspberry (starts from tip), 25c per dozen. Lawton blackberry, 70c per 100, or $6.00 per 1000.
James M. Gordon, Belmont, Ohio.



Bingham Perfect Smokers.
Cheapest and Best on Earth.
Patented 1878, 1882 and 1892.

BINGHAM & HETHERINGTON HONEY KNIFE.



Patented May 20, 1879 **BEST ON EARTH.**

Prices of Bingham Perfect Smokers
AND
Bingham & Hetherington Honey=Knives.

6 Doctors, 3½ inch....	$7 00	1 per mail....	$1 95	2 per mail, at one time....	$3 50
6 Conquerors, 3 inch..	6 00	1 "	1 75	2 " "	3 00
6 Large, 2½ inch......	4 50	1 "	1 25	2 " "	2 25
6 Extra, 2 inch........	2 75	1 "	1 00	2 " "	1 90
6 Plain * 2 inch........	2 40	1 "	70	2 " " . .	1 30
6 Wonders, 1¾ inch...	2 50	1 "	65	2 " "	1 20
6 Knives...............	4 50	1 "	1 10	2 " "	2 10

*The Plain does not have the Coiled Steel Wire Handle, neither the bent Cap for throwing the smoke at right angles. All the others have all our new improvements.

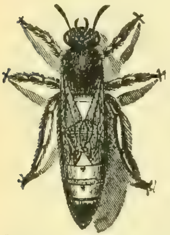
The movable bent cap enables you to change a curved shot to a straight shot instantly, and *vice versa;* throws smoke downward without spilling ashes; adds durability and convenience, and is cheaply replaced if injured. The wire handle is always cool for opening and closing the smoker when refilling with fuel. Sound, dry stove-wood is the best fuel for Bingham smokers. Below is a copy of a letter from the largest producer of comb honey in the world:

Messrs. Bingham & Hetherington.

Gentlemen:—I use the Bingham & Hetherington honey-knife and the Bingham smoker in my business because they are more effective for the purpose than I have yet found in the market.

Cherry Valley, N. Y., Feb. 15, 1894. J. E HETHERINGTON.

T. F. BINGHAM, ABRONIA, MICH.



THE BEST

is what I mean to give my patrons. Drones from selected queens. Breeders are carefully selected from the best. Personal attention and assiduous care given to rearing queens that they may be of the highest type.

Untested, $1.00; after May, 75c; March and April, 6 for $4.75; dozen for $8.50. May and June, 6 for $4.00; dozen, $7.50. Later, 6 for $3.50; dozen, $6.50. Tested, 3-banded, $1.25; 3 to 5 banded, $1.50 to $4.00. Send for circular for particulars. Make money orders payable here.

J. B. CASE, Port Orange, Vol. Co., Fla.

☞In responding to this advertisement mention GLEANINGS

Good ! Good !

Those wishing the finest and best business bees, both for pleasure and profit, should know that Jennie Atchley is headquarters for such queens. I breed both the 3 and 5 banded strains, at the following prices: Untested (March, April, and May), $1.00 each; $5.00 for 6, or $9.00 per dozen. June till October, 75 cts. each; $4.25 for 6, or $8.00 per dozen. I breed my queens in separate yards, and I have as fine Italian bees as there are anywhere. Nuclei and full colonies. I have one straight merchandise rate on bees by express—lowest in U. S. Fine breeders always on hand; 3-banded, $5.00; for straight 5-banded breeders, apply by letter. Also bees by the pound. I guarantee *all* my queens to be good and serviceable, and my fine faultless breeders unexcelled in the world. Safe arrival and satisfaction.

I also have a carload of A. I. Root's Dovetailed hives and Bee-supplies to accommodate my Southern customers. Dadant's foundation and Bingham smokers. Send for catalogue.

JENNIE ATCHLEY, Beeville, Bee Co., Texas.

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my ***Golden Italians.*** They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. ***Sections, $2. per M.*** Dovetailed hives way down.

CHAS. D. DUVALL, Spencerville, Md.

Sections Cheap.

We have on hand the following stock of ***choice white*** 4-piece dovetailed sections, which we offer at $1.00 per thousand:

75000	4¼x2,	open top and bottom.
25000	4¼x1⅞,	" "
4000	4¼x1$\frac{13}{16}$,	" "
4000	4¼x1$\frac{15}{16}$,	" "

G. B. LEWIS CO., Watertown, Wis.

☞In responding to this advertisement mention GLEANINGS.

The Triumph Incubator,

Manufactured by Ed. W. Cole, Kenton, O., is the cheapest and best. Eggs for hatching, from stock which won nearly 300 premiums the past year.

Send for Description and prices.

For Sale An interest in iron-manufacturing business. Capital required, $5000. Will take good paper or securities. An excellent trade taught in connection.

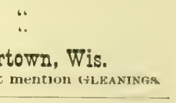
L. L. ESENHOWER, Box 331, Spring City, Pa.

BEE=MEN, Get free Price List of Apiarian Supplies.
F. N. JOHNSON, Knoxville, Ill.

Given Brood Foundation,

About five 16½x8½ sheets to the pound, in 10-lb. lots, at 40 cts. per pound.

H. W. FUNK, Normal, Ill.



FREE! My price list of pure Italian bees and queens, and white and brown ferrets. Address
N. A. KNAPP,
Rochester, Lorain Co., O.

Colorado Cactus, Known as "***Hen and Chickens;***" red, waxy blossoms. One by mail, postpaid, 25c, or a group of 5 to 7 for $1.00, by express. Grows in any climate. Beautiful ornament. Stamps taken. Address

R. K. & J. C. FRISBEE. 172 W. Maple St., Denver, Col.

Golden Wyandotts.

No better birds in America. Cockerel, $5.00. Trio, $7.00. Eggs, $2.00 per setting.

E. D. Keeney, Arcade, N. Y.

FOR SALE.—Rooted cuttings and plants of ***Chrysanthemums***, such as Childs, Lincoln, Widener, Wanamaker, Spaulding, Boehmer, Waban, Canning, and many others. Will send by mail prepaid for 50 cts. per dozen; if by express, will send larger plants, not prepaid. **J. S. WARNER, Medina, O.**

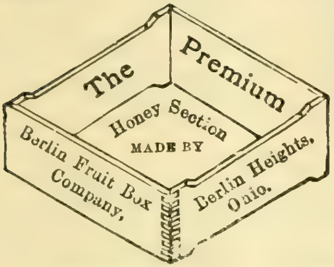
Daughters of one of ***Doolittle's very best*** golden five-banded breeders, mated to the very choicest drones from ***Jennie Atchley's*** 5-banded strain, thereby securing a direct cross with the best 5-banded stock obtainable. No drones allowed to fly, only from queens that produce 4 and 5 banded bees. My aim is to rear nothing but the best, regardless of cost. Untested, 75c; ½ dozen, $4.25; dozen, $8.00. Safe delivery and satisfaction. Money-order office, Monongah. P. O. address, Worthington, W. Va. ***L. H. Robey.***

Eggs Brown and White Leghorn, $1.25. P. Rock, Bl'k Minorca, $1.50. Bl'k Langshan, L't Brahma, Pit Game, Buff Cochin, $2.00 per 13. Fowls for sale. Circular free.

Address **GEER BROS., St. Marys, Mo.,**
or, **H. B. GEER, Nashville, Tenn.**

READY TO MAIL, TESTED ITALIAN **QUEENS** for $1.25. Untested, $1.00. Will be ready in April. Safe arrival guaranteed. Drones and Bees cheap.

J. N. COLWICK, Norse, Bosque Co., Texas.



Send for our new price list of Bee supplies and Fruit packages. A liberal discount allowed on winter orders. Address

BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.
1-10d

Automatic Comb Foundation Mills. **Made by W. C. Pelham, Maysville, - Ky.**

BBB'S!

If you keep ***BEES***, subscribe for the **Progressive Bee-keeper**, a journal devoted to Bees, Honey, and kindred industries. ***50 cts. per year.*** Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address

LEAHY MFG. CO., HIGGINSVILLE, MO.

☞In responding to this advertisement mention GLEANINGS.

GEO. W. HUFSTEDLER,

Breeder of 5-Banded Italian Bees and Queens.
Untested, 75 cts. Tested, $1.00 each.
CLARKSVILLE, RED RIVER CO., TEXAS.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,
12tfdb ***Sole Manufacturers,***
Sprout Brook, Montgomery Co., N. Y.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis.

Manum's

Leather = Colored Italian Queens

Are in the lead the world over. Tested queens one dollar each. Descriptive catalogues free to all applicants.

Also wood screws $\frac{3}{16}$ longer than formerly; otherwise the same. Price $9.00 per 1000 by express; $1.00 per 100 by mail. Taps, $1.15 each.

A. E. Manum,
Bristol, = = = = Vermont.

Have You seen our Catalog

"Everything for Gardeners"?

It is unlike other Catalogs. Straightforward and truthful descriptions by a practical market-gardener, of the best in **SEEDS.** Tells about growing **$2000 worth of Prize-taker Onions** on an acre, and how to grow **$3000 worth of Celery** on an acre. We sell **Vegetable Plants, Timbrell** and other leading **Strawberries** and **Small Fruits. Trees** and **Supplies** for gardeners. **Danvers Yellow Globe Onion Seed at $1 per lb. True Prize-taker, $2.25.** We send a pkt. of this and of **a new Early Tomato,** smooth, good shape and size, and the earliest, also a pkt. of new **Sensation Lettuce,** with Catalog and several useful leaflets, for only **10c.** Send now.

CHRISTIAN WECKESSER, Niagara Falls, N. Y.

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds
W. Atlee Burpee & Co., Philadelphia, Pa

IN THE FIELD **GOLDEN QUEENS, NUCLEI.** *CIRCULAR FREE.* **J. F. Michael, German, Darke Co., Ohio.**

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

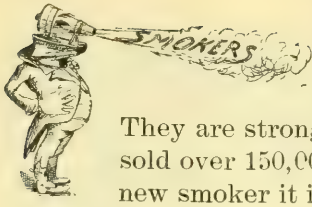
Seeds
Free!
ALSO
Freeman
Potatoes.

YOU CAN HAVE SUCCESS

in Bee Culture a Whole Year; 10 strong eyes of Freeman Potatoes (pure), and 10 packets of flower and vegetable seeds, for **40 CENTS,** silver. This offer is made to boom our circulation.

BURTON L. SAGE, Highwood, Conn.

☞In responding to this advertisement mention GLEANINGS.



Strength of Blast

is not the only good feature of the Smokers we manufacture. They are strong, and well made. Of the **Clark Cold-Blast** we have sold over 150,000; and the **Crane Hot-Blast**—well, although it is a new smoker it is taking like "hot cakes." . . . .

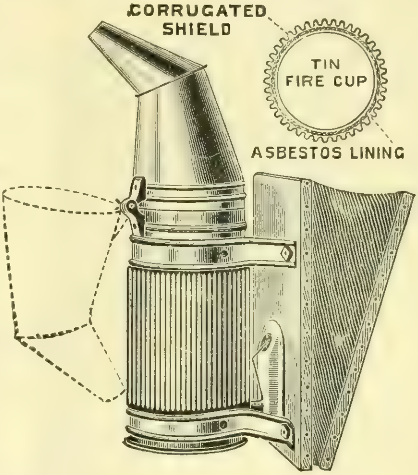
The new '94 model Crane is a beauty; and among some of its distinguishing features are an improved

Check-Valve,

a device that forces the air through the cup, even when crammed with fuel, and at the same time prevents smoke from going into the bellows; a

Hinged Top

secured by a malleable-iron hinge accurately milled at the joint so that the top will fly squarely in place. No need of burning fingers in replenishing, nor losing the top off.



The Lining

this year consists of asbestos sheeting around the outside of the fire-cup; and over this still is a neat corrugated shield This combination is the most effective of any thing we have ever tried. And last, but not least, the cup is secured by four small BOLTS, not screws.

Price of Crane Smoker, each in a neat telescope pasteboard box, $1.60; or prepaid, $1.95. Dealers, write for wholesale prices

N. B.—We are the authorized manufacturers.

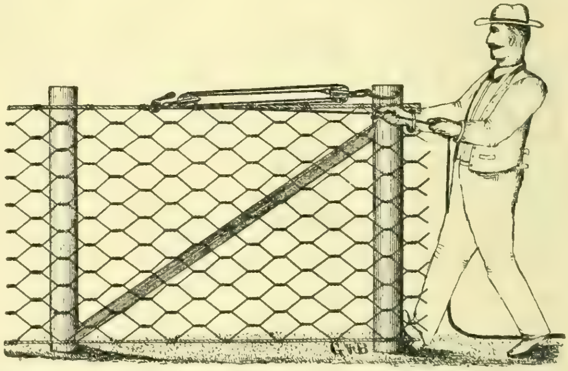
P. S.– Don't forget that our polished **Sections** can not be excelled. Send for our 52-page catalog, and sample of Gleanings in Bee Culture.

A. I. ROOT, Medina, Ohio.

Web-wire Fencing.

Those in need of a neat and substantial farm fence at a low price will be interested in the full-page announcement given in the last issue. This is also excellent as a yard or front-lawn fence; and where you do not need a full roll you can probably find in the list of short pieces just what you require at full-roll price. The adjoining cut shows the style of this fencing, and manner of erecting. Wire-stretchers for this purpose, $1.00 each.

A. I. ROOT, Medina, Ohio.



COMB FOUNDATION.

Made by an

IMPROVED PROCESS ON NEW AND IMPROVED MACHINES

of my own invention, which enables me to produce

The Cheapest.

Prices on 5 lbs. or more will range from 35 to 50c per lb. Send for prices and samples.

W. J. FINCH, JR.,
931 E. Monroe St., Springfield, Illinois.

Control Your Swarms, Requeen, &c.

Send 25 cents for samples of West's Pat. Spiral wire Queen-Cell Protectors, and and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. 12 Cell-Protectors, 60 cts., or 100 for $3.; 12 Cages, 60 cts., or 100 for $5, by mail. Address

N. D. West, Middleburgh, Scho. Co., N. Y.

Sold also by all the leading supply dealers.

5-BANDED GOLDEN ITALIAN

Bees and Queens. Pure B. P. Rock and S. C. B. Leghorn eggs, $1.00 per 13. Best only. Catalogue free.

Chas. H. Thies, Steeleville, Ill.

Please mention this paper.

New Cowan Reversible Extractor

Is now endorsed by the best and most extensive bee-keepers of the country. . . . . .

Some of its Features are:

Reversing Without Stopping.

Can be done by simply slowing up the motion.

Gear Beveled.

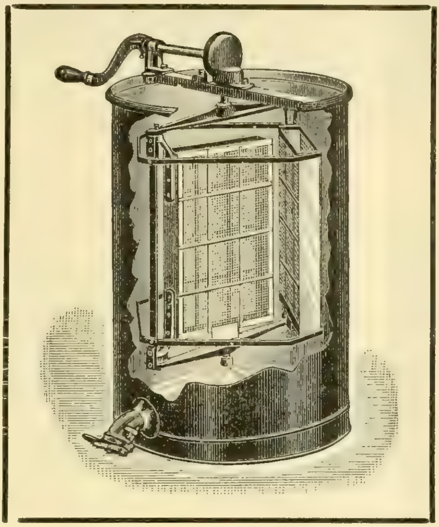
Strong and well made, and operated by a good substantial handle.

Milk-can Handles

are attached to the can.

Two Coats

of carriage black, and neatly lettered.



Can of heavy XX Tin

for 2-frame; four and six frame of galvanized iron.

Bottom

of improved type.

Honey-gate

is of a new pattern and of ample capacity, and malleable-iron handle.

Reversing Pockets

braced stronger than ever, and guaranteed not to bulge.

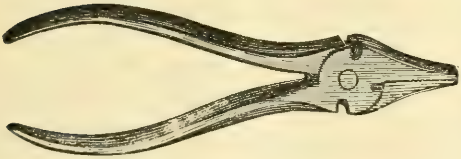
Gear and Reversible Pockets

easily removed by taking out four screws.

Two-frame extractor, L. size, $10.00; four-frame, L. size, $20.00; six-frame, L. size, $26.00. The four and six frame extractors also reversed without stopping. 52-page catalog of Bee-keepers' Supplies free.

A. I. ROOT, Medina, Ohio.

Button's Pliers.

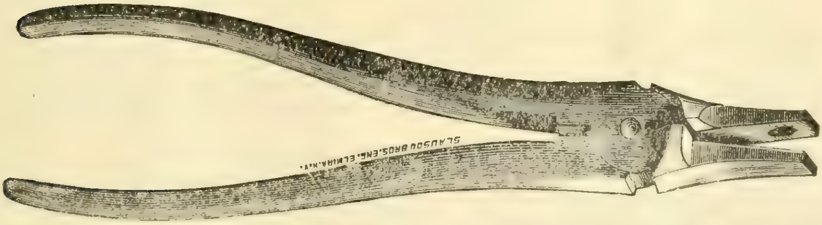


Since the patent expired on these a few years ago the price has been gradually declining, and we are now able to offer a further reduction on the prices quoted on page 48 of our catalog. Until further notice the prices will be as follows:

PRICE LIST OF BUTTON'S PLIERS.

Post	Length.	No. of wire they will cut.	Price each.
4	4½-inch pliers	No. 14 and smaller	$ 35
6	6 " "	No. 12 " "	40
10	8 " "	No. 10 " "	50
17	10 " "	No. 7 " "	75

Cronk's Cutting-Pliers.


SLAUSON BROS. ENG. ELMIRA, N.Y.

We offer also the Cronk pliers, as shown in above cut. These are superior to the Button; have greater cutting power, and are unquestionably the best cutting-pliers made. They are made in two sizes 8 and 10 inch. We can furnish the 8-inch for 75 cents; the 10-inch for $1.00. By mail, 15 and 20 cents extra for postage.

A. I. Root, Medina, Ohio.

TESTED

Queens are usually sold for $2.00 I will explain why I wish to sell a few at less than that. As most of my readers know, I requeen my apiary each spring with young

QUEENS

From the South. This is done to do away with swarming. If done early enough it is usually successful. It will be seen that the queens displaced by these young queens are never more than a year old: in fact, they are fine tested Italian queens, *right in their prime;* yet, in order that they may move off quickly, and thus make room for the untested queens, they will be sold for only

$1.00.

Or I will send the *Review* for 1894 and one of these queens for only $1.75. For $2.00 I will send the *Review*, the queen, and the book "Advanced Bee Culture." If any prefer the young laying queens from the South, they can have them instead of the tested queens, at the same price. A discount given on large orders for untested queens. Say how many are wanted, and a price will be made.

W. Z. HUTCHINSON, Flint, Mich.

Quigley's Golden Italians

Are big yellow bees that are hardy, gentle, and good honey-gatherers. Warranted queens, April and May, $1.00 each. Safe arrival and satisfaction guaranteed. Every thing needed in the apiary, best quality, bottom prices, low freight. Price list free. ***E. F. Quigley, Unionville, Mo.***

TESTED ITALIAN QUEENS, $1.00 each; Select tested, $1.50; untested, 65 cts. Two-frame nucleus, with tested queen, $2.00; with untested queen, $1.50. Queens ready April 1.

Stewart & Cooper, Quebeck, Tenn.

Locust-Trees for Sale.

Very valuable for shade and timber. Also a great honey-producing tree. Blows very fragrant. Trees from 3 to 5 feet high, 30 cts. each; 25 cts. each per 100.

W. J. Hillman, Green River, Vt.

Bee-keepers' Guide.

New edition, just out. This is conceded to be the fullest, most scientific, and one of the best of our American bee-books. Every bee-keeper should have one of the late editions. Price, by mail, $1.25. Liberal discount to the trade.

A. J. COOK, Claremont, Cal.

BEE SUPPLIES! send for free copy of **ILLUSTRATED CATALOGUE.** describing every thing useful to a **BEE-KEEPER.** Address

T. G. Newman, 147 So. Western Ave., **Chicago.**

CHOICE Silver-Laced Wyandotte eggs for hatching, from my well-known strain. 75c per setting of 13; two settings, $1.25. **W. J HILLMAN, Green River, Vt.**

Aluminum Bicycles,

Bright as silver, light as wood, three times stronger than steel. Send for catalog to Robert B. Gedye, La Salle, Ill. Bargains in second-hand and shopworn wheels.

Bicycles. High-grade wheels, direct from the factory, at cut prices. Terms easy. Write ***EZRA G. SMITH, MANCHESTER, N. Y.***

Names of 5000 voters of Medina County, O., for advertising purposes, at $1.00 per 1000. Address

A. VAN EPP, Medina, O.

Sections, Bee-Hives, and other Bee-Keepers' Appliances at Bed-rock Prices.

Best of Goods at Lowest Prices.

Write for free, illustrated catalogue and Price List.

G. B. Lewis Co., Watertown, Wis.

220 WORLD'S FAIR VIEWS Free

to every new subscriber who sends $1.00 for the **WEEKLY AMERICAN BEE JOURNAL** one year, and 10 cents for postage. The 220 Photographic Views are sure to please you immensely. A FREE SAMPLE COPY of the "Bee Journal" will be sent you on application, giving full particulars and description of the Photographic Views. Address **George W. York & Co., 56 Fifth Ave., Chicago, Ill.**

☞ To new Subscribers The 220 Views, with "Bee Journal" six months—ALL for only 75 cents.

AT THE WORLD'S FAIR **THE PORTER BEE ESCAPE** received the **ONLY** award given an escape. Practical bee-keepers everywhere use and recommend it as a great labor-saving implement, and as the best. Circular and testimonials free. Prices:—Each, postpaid, with directions, 20 cts.; per doz., $2.25, *and your money back, if not satisfied.* Order from your dealer, or if more convenient from the manufacturers. **R. & E. C. PORTER, LEWISTOWN, ILL.**

13 Carloads of Supplies.

This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially **FOR THE WEST.**

Joseph Nysewander, Des Moines, Ia.

GLEANINGS IN BEE CULTURE

A JOURNAL
DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS

ILLUSTRATED
SEMI-MONTHLY
PUBLISHED BY A. I. ROOT
$1.00 PER YEAR
MEDINA OHIO

Vol. XXII. APR. 15, 1894. No. 8.

STRAY STRAWS

FROM DR. C. C. MILLER.

I enjoyed reading p. 270 very much.

"Honey-bees from $1 to $3 a stand" is to be the regular assessment in Indiana.

Stingy is a word that doesn't apply to bees unless you make the *g* hard.

Melilot hay is a success with my stock. Been feeding a good bit lately.

Wagner's pea, the new forage-plant, is said to yield honey from July to middle of October.

Real-estate dealers in California and Texas seem to be having quite a boom in the bee-journals.

The consensus of opinion among the repliers in *A. B. J.* is against efforts to urge early brood-rearing.

Another objection, friend Boardman, to the 3 cornered starter in sections the drone comb, which doesn't look so pretty.

Poultry and bee men are to have a Scandinavian monthly published at Cedar Rapids, Iowa, called *Fjarkra- og Bi-Avl.* I'm not going to read it.

Doolittle has been having a hot discussion in a local paper on tariff and temperance. His opponents come from afar and not singly, but Doolittle seems to draw the most blood.

The repliers in *A. B. J.* are badly mixed up over the question as to whether more honey will be left in the brood-chamber when run for comb than extracted, with a leaning toward the affirmative.

Eight-year-old comb honey is reported in *A. B. J.* as an article of diet on the table of Hon. Eugene Secor. He says no one at the table suspected it was old. Kept in the garret and never granulated.

J. B. Trotzmueller, in *Bienen-Vater*, says May sickness of bees—which is, perhaps, our spring dwindling—may be cured by speculative feeding. [We don't catch on to that word "speculative," Doctor.—Ed.]

Tell Ruth Moore I've seen that honeyed butter mentioned in several papers, but no instructions for it given. Can any of our foreign friends tell us how?

Doolittle tells in *A. B. J.* that his bees got pollen March 10 from skunk-cabbage. Yet nearly every number of *A. B. J.* tells how to *kill* skunks. [There must be here a missing link. We fail to get the connection.—Ed.]

That murmur. I don't know. My bees *always* murmur in the cellar, and I've had them come through in fine shape. May be it's bad for them, but it always sounds kind o' comfortable. [There! you've redeemed yourself.—Ed.]

I took ten colonies out of cellar March 17. Weather kept beautiful for a week, but wife wouldn't let me take out more. Said I'd given strict orders not to allow it; 24th, winter came again. Big snowstorm, and about 10 above every morning up to date, 30th. Glad I had a wife.

Some write that they have no trouble with burr-combs with a ¼-inch space between top-bars and supers, even with thin top-bars. But thin top-bars may sag as the years go by; and at any rate I want thick top-bars to keep the white sections at a distance from the black brood-combs.

That picture on p. 275 is just what bees will always do when they get a chance. I've seen them start building upward more than a hundred times. Put an empty super over any colony this spring, and they'll build *up* when the flow begins. [Then you think such building is not a "strange freak."—Ed.]

Yes, indeed, Mr. Editor, you're right, on p. 269. It's a *big* grain of comfort to have so solid a man as H. R. Boardman with me on artificial heat. But I don't believe in making fires so often as he, once a week. I'd rather make a fire only once each winter, and then keep it up all winter. [Do you hear that, Boardman?—Ed.]

F. A. Willson, Bathgate, N. Dak., says (*A. B. J.*) that in 1892, with no bees, squashes grew as big as an apple, then turned yellow and died. In August, bumble-bees appeared, and all that set after that grew well. In 1893, bumble-bees were on hand early, and "every set produced a fine large squash." [Here is a good fact for that symposium.—Ed.]

G. W. Demaree reports in *A. B. J.* that he extracted all the unsealed honey from a lot of combs, then uncapped and extracted the rest, and evaporated artificially the first lot, which proved inferior in texture and flavor to that evaporated by the bees, and granulated sooner. [Here is a valuable fact. Who else has had similar experience in the same line?—Ed.]

Experimenter Taylor asks what I know about Given foundation to warrant me "in maligning its good looks." Simply that I used it as long as I could buy it, and I don't think I ever saw a sheet of uniform thickness. I never heard of a uniform sheet before making that statement, but have since, and I've no desire to dispute what others say.

John F. Gates gives his method in *A. B. K.* Keeps his bees in big box hives 13 in. square and 18 to 24 in. high; never takes any honey from them, and but one swarm annually. He hives swarm on old stand in a hive 8 in. high; gives supers, gets good crop, then adds bees to the old hive, and melts up combs in little hive to have it empty for next year. If you think Gates is a fool, you're fooled.

T. W. Cowan said, in British convention, that it was not worth while, in his opinion, for English bee-keepers to follow the Americans, who were "rather apt to rake up old, tried, and discarded patterns of frames as though they were new, and their own ideas." But why shouldn't I pick up a gold coin because some one else has thrown it away thinking it brass? [That's it; you've hit it exactly.—Ed.]

T. K. Massie says he has no trouble with burr combs with top-bar 1⅛ wide and ½ thick spaced 1⅜. His top-bar is 11¼ long. A longer top-bar might sag if ½ inch thick. But he's down on the V edge on end-bar. [There seems to be some misunderstanding about this V edge. We make ours blunt, $\frac{1}{16}$ inch wide at the point. We have found in some cases that they have been objected to, simply because the V came to a point—that is, was sharp. By mistake on the part of the workmen, some of the V edges went out from the factory sharp, and to these is traceable some of the complaints.—Ed.]

What say the bees? (see top of p. 286). But what if the two outside combs are full of honey to start with? My bees have said very emphatically they'd rather not have brood in outside combs. [Yes, that's true; but our bees (or, rather, queens) will often lay in all the combs of an *eight*-frame hive—yes, clear to the sides of the hive; but they have almost never done this in the *ten*-frame hive. The fact is, the eight combs *seem* to have about the capacity of the average queen; therefore the bee-keeper who wants no surplus in the brood-chamber prefers the eight-frame hive.—Ed.]

GENERAL CORRESPONDENCE

NOTES FROM A MOHAWK VALLEY APIARY.

ITS BEE-KEEPERS NOT SECRET MONOPOLIZERS OF A GOOD LOCALITY; THE GLUCOSE PROBLEM.

By P. H. Elwood.

Quite likely the Rambler has not forgotten his experience four miles east of here at the Van Deusen foundation-factory; for in Ramble No. 104 he puts the bee-keepers of his native State into a class by themselves, and credits them with having a good thing which they secretly monopolize. Such is not the case. Bee-keepers have no Eldorado east of the Rocky Mountains—certainly not in the Mohawk Valley. Our crop of comb honey does not average more than 50 lbs. per colony, and our crop of extracted not more than 75 lbs., unless extracted too often for fine quality. For the last few years we have not averaged even that. The desire to monopolize this business does not exist, for a majority of bee-keepers are going out of the business, either by curtailing the extent of their business or by abandoning it entirely. Of course, the successive poor seasons have been largely instrumental in producing this result. More influential, however, have been adulteration and the *suspicion* of adulteration which have materially lessened the demand and lowered prices of both comb and extracted honey. The Wiley fabrication has reached every part of the country, while the sugar-honey slander is fast following it. It has been asserted that mere suspicion of adulteration has little effect on demand and prices; but so long as "loss of confidence" is credited with being the cause of our present disastrous business depression it would seem to be unwise to assert that "loss of confidence" in the genuineness of any staple production would be any less disastrous in the branch of business immediately concerned in producing and marketing the same.

Not long since, an intelligent lawyer of New York city informed me that he had seen comb honey in market that was wholly an artificial product, and made entirely without the aid of the bees. Again, a heavy jobber in honey informed me that the suspicion of sugar in honey deterred many from buying the white comb honey. A manufacturer who uses considerable extracted honey said he would no longer use any California honey, nor buy any Eastern honey, except from the producers, because of suspicions of its purity. When he finds a producer who adulterates, unless such a one is prosecuted to the full extent of the law by his brother bee-keepers, he may conclude that it is a common practice, and will use a substitute for honey, as do those who are suspicious of "sugar honey." The editor of GLEANINGS is entitled to the gratitude and support of bee-keepers everywhere for the publication of the analyses of James Heddon's honey. It is very much better that the occasional producer advocating or practicing adulteration be condemned and prosecuted by his associates than to wait for others to do so. This condemnation shows conclusively that the person exposed is but an exception to the rule that "producers do not adulterate."

The common and unmolested practice of so many dealers in adding glucose to honey, particularly that designed for table use, is practically ruining the market for extracted honey. What we need is a more enlightened public sentiment against the injury produced by adulteration; then more stringent laws can be enacted and *enforced*. I am confident the fact can be established that the use of glucose or artificial grape sugar is always injurious to health. With this truth recognized, we can rout the whole army of starch-sugar men. Chemists may decide that there is nothing injurious in glucose; but the verdict of the living laboratory contradicts this. Chemists do not understand why the variety of grape sugar in glucose is not as healthy as that found in honey; yet a swarm of bees fed on honey will live and flourish for an indefinite length of time, while one fed on commercial glucose will die. There is no ground for belief that the human stomach can assimilate glucose any better than can the honey-bee.* A series of experiments with animals and with men in penal institutions, by men who can not be influenced by money, to determine the effects of a diet in which glucose is substituted for common sugar, will give us what we want. The few experiments already made are not trustworthy.

THE CRANE SMOKER.

I have used a Crane smoker the past season; and until I find a better one I shall use no other. Before trial I was any thing but pleased with its appearance. The bellows was upside down, and the crooked nozzle was not looked upon with favor. I soon discovered that the position of the bellows was an improvement. It is more convenient to carry and use, the operator not having to reach quite so far for it, and then grasping it in the best position for use. The curved nozzle saves tipping it so far, and there is less danger of rolling out coals. But these are small advantages compared with its great merit of being always ready with a volume of smoke sufficient for the crossest colony. It is somewhat annoying to grasp a smoker when the bees are stinging you, only to find that it needs pumping a while before you can get a volume of smoke from it. The inclosed blast and smoke-proof bellows of the Crane, after continual use from spring to fall, showed their superiority in furnishing a blast that was free from wheeziness, and almost if not quite as clear as when new. The asbestos lining, together with a good draft, permits a combustion that usually leaves but little black wood. The smoke and the wood go out together. I have had smokers in which the draft or air-supply was so defective as to leave a large percentage of the wood charred, necessitating the removal of the same before filling up with fresh fuel. For this reason the Crane takes not very much more fuel than some other smokers of much less capacity. This smoker, to me, has proven to be both a time-saver and a sting-saver. Fire can be built in it in much less time than in other smokers I have used. A lighted piece of paper and a handful of charcoal from yesterday's fire, with a few strokes of the bellows, makes a perfect foundation for a hard-maple filling; and all day after, it is ready to respond to the slightest motion of the hand. In this connection I will say that a small sheet-iron dish or pail, with tight-fitting cover, is a convenient and safe receptacle for holding the coals at the close of the day's work, and for converting the same into charcoal. I do not think the smoker perfect. The leather cut-off valve in the one received last spring burned out in a couple of days. This was immediately replaced by one made of asbestos paper, which worked well during the remainder of the season. I used no other smoker, and this one probably saw as much service as the average smoker will receive in three or four seasons. Notwithstanding the lining of asbestos, the smoker would get too hot for comfort, especially the nozzle, which, while it could be knocked off for filling, on account of its thickness would remain too hot for replacing. I notice the smoker gotten out for this season's trade has the asbestos lining removed from the nozzle, and is hinged to the fire-pot. After a day's use I can say this is a great improvement. It also has a corrugated shield to protect the hand, and is not so heavy as the first one. Probably it is as light as a smoker of this size can be made and have it of good quality. The leather valve has been improved by a tin lining and a spring to help its action; but the best thing I have noticed about the 1894 smoker is the evidence it bears that no effort or expense will be spared to perfect it. The rim-cloth strainer for the nozzle can be removed for cleaning. After a day's trial I threw it away. Others may esteem this highly. Were I to hinge the nozzle I would point it, instead of at right angles with the bel-

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*The ordinary *commercial* glucose is, we are sure, harmful. Chemists may be right regarding the article refined of its sulphuric acid.—ED.

lows, at an angle of about 45° toward the left for a right-handed man. This is about as much of an improvement as the curved nozzle; for, while the latter saves bending the arm, the former saves twisting it. A good smoker is the most valuable implement in the apiary, and I have written this for the benefit of bee-keepers. and not for the benefit of the makers who probably do not need the smoker trade as much as do some of their competitors.

WILL HONEY GO ON THE FREE LIST ?

The Senate committee have lowered the House duty on honey. and it would not be at all surprising if honey were put upon the free list before the Wilson bill passes. The Vermont State Association have sent in a protest, but I have not heard any thing from the standing "watch-dog" committee on legislation (Messrs. Hambaugh, Taylor, and Secor), appointed at Albany. The Mohawk Valley now produces but little more extracted honey than a supply for the home trade.

The weather so far this month has been as it usually is in April. Our cellars being heavily stocked, the warm weather caused the temperature to rise beyond the point of safety. We therefore set out a part of the bees. The waste on the cellar bottom for the ten days before setting them out nearly equaled that of the entire winter before. Those from the cellar emptied, appear in fair condition, with few dead swarms. We had removed over three hundred before we found the first dead one. This is earlier than we ever set out bees before.

Starkville, N. Y., March 20.

MIGRATORY BEE-KEEPING IN GERMANY.

GRAVENHORST'S HIVE; SOME OF ITS ADVANTAGES FOR MOVING.

By C. J. H. Gravenhorst.

As soon as I began keeping bees for a livelihood I came to the conclusion that I could achieve success only by adopting the migratory system of our old bee-masters of the heath who live on the large plains of North Germany, and of whom I gave an account in a previous article.

It may be that some of my brother bee-keepers in Germany have attained the desired success in apiculture without hauling their bees around from place to place; but it is only when they live in one of those regions of Germany where bees may gather honey from spring till autumn. But such regions are very scarce here. In most parts of our country we can expect a good honey harvest only, first, in spring—that is, in April, May, and June, from rape, bilberry, fruit-blossoms, etc.; or, second, in June and July from locusts, lindens, corn-flowers, etc.; or, third, in July, August, and September, from buckwheat and *Erica vulgaris* (heather). As I live in the second region I am obliged to move around with my bees early in the spring, and in July, if I wish to make money with my bees; then early in the spring till June, and from July to September, my bees live at home mostly from hand to mouth. Thus I have to be continually on the lookout for the best bee-pasturage in my immediate neighborhood, as well as many miles from my apiaries; and when the frost killed the blossoms at home, or when I perceived that the blossoms near my apiaries did not yield any nectar, while at some distance the frost had not done any damage at all, or that the blossoms yielded more nectar on account of rain, or when some one at that place had sown several acres of good honey-plants—for instance, rape, white clover, etc., I did not hesitate about hauling by bees to those places which I found to be better. You see, friend Root, I was forced to travel around with my bees, and it often had to be done very quickly. You know what a great advantage it is to be in the right place at the right time, in order that the bees may work fast. You know, also, how soon a change of weather sets in, and how soon the plants lose their blossoms. Considering all this, you will readily see why I have to use a hive suitable for migration, that can be made ready without the least delay, for a long or short journey, and one that gives the greatest immunity from damage to any colony or its combs. The hive I have used for nearly thirty years has proven to be such a one. Let me relate a little episode that well illustrates what I have just said:

On the first day of April, 1893, I hauled over 40 colonies to a friend who resides in a village two miles from my home. Here abounds the bilberry (*Heidelbeere*), yielding every year a good crop of honey. One morning my good friend called me and said:

"You know, friend Gravenhorst, we have had severe frosts for several nights, and so all the blossoms of our bilberry are destroyed. There is now no hope for pasturage for our bees."

"Yes, I know," said I, "and therefore it will be better to haul my bees home."

"You will not do that if I tell you what I know. I heard, some days ago, that, six miles from my village, there would be twenty or more acres of rape in full blossom. I was there yesterday, and I saw the large field. It was just as I was told. I also saw the bees hard at work on it. The rape has not suffered in the least from the frost. Now, I am of the opinion that we had better haul our bees this night to that place. Not far from the rape-field I have hired a bee-house in the garden of an old friend. There will be room enough there for our colonies."

"All right," said I. "Then I will go with you and prepare my bees for the trip."

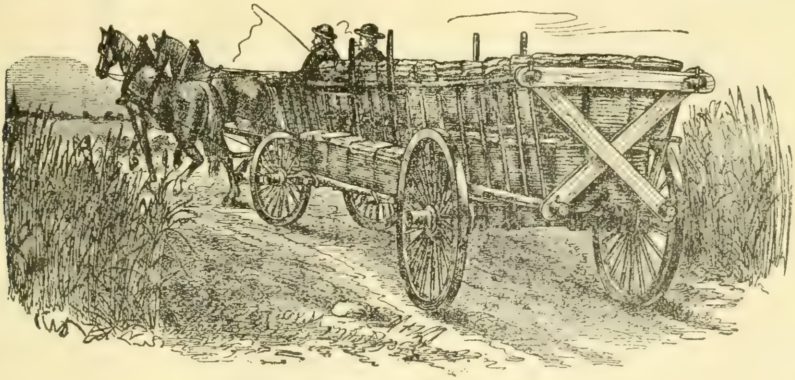
I went to my neighbor, a cartman, and ordered him (as I have no team) to be on hand with the bee-wagon at six o'clock in the evening, at my friend's house in the neighboring village. At three in the afternoon I began to prepare my colonies for the journey. This I did in this way: I first turned over one hive after another. You remember the hive I use is the old straw skep, but larger, and furnished with 16 frames, nearly the size of your Langstroth frame. The next thing I did was to convince myself, by looking into the hive, whether the combs were fast in the frames or shaky. In this case a wooden stick, ⅜ of an inch thick, was thrust into the space between the combs and into the wall of the hive, giving the combs a sufficient support; but as the combs are mostly built fast in the frames, very few sticks are necessary—in most of the hives, not any. When I see, by peeping into the hive, that all is right, I take a closely woven cloth, lay it over the opening of the hive, and tack the four ends to the hive with wire nails, or use a cord and tie the cloth to the hive, as you see in the engraving. Then I replace the closed hive on its stand. The bees which take wing on account of preparing the hive for the migration, or which flew off on account of the smoker, etc., will now enter the hive, as the fly-hole is not covered by the cloth.

At five o'clock all was done. Then it took scarcely five minutes to prepare my hives for the migration. The cartman with his team and the bee-wagon had in due time arrived; and as soon as the bees had ceased to fly I would give a whiff of smoke into the entrance, causing the bees to go into the hive. I had ready some wet moss to close the entrances of the hives. After this was done the hives were placed on the wagon and stowed away, head down and cloth up, just as you see it done in the engraving. On such a wagon I load 60 or more of my movable-comb hives.

Now began the journey. It is an old practice of our wandering bee-keepers, after a five-minutes' passage to come to a standstill for five-minutes, in order to give the bees a chance to come to themselves again. They are then more quiet during the journey, for then they do not cause too much heat.

After our arrival at the place of destination the hives were set in the bee-house on shelves, the moss in the entrances was pulled out, and the job was done. We bade farewell to our colonies, and went home. This was on the 6th of May; and as the weather was very fine for our bees on the following days, I hoped they would do very well. On the 9th of May I made up my mind to go and see what my colonies were doing. Before sunrise I was in the company of my bee-friend. The first thing now to be done was to take off the cloths from the hives, to see how it was with my bees. On turning over the first hive I was aware that the bees must have done their utmost, as the hive had a respectable weight. So it was. After removing the cloths I found that all was well. Not one comb was injured. There was nothing to do with the bees. Half an hour's work, and I knew all about every colony. Remember, friend Root, that all this was possible only because I always handle hives more than frames. I had scarcely ended my review when the bees began their flight. My friend and I stood aside, seeing our bees work.

"Well, my friend," said I, "it matters not that Jack Frost has shown us his face by damaging our bilberry-blossoms. If we have only two more days like the last ones, we'll thank him for his trick."



HOW THEY MOVE BEES IN GERMANY.

Till the 16th of May we had very fine weather; but then the joy had an end; and as cold and windy weather set in, and the time of blooming of the rape was over, we hauled our bees home.

Would not every day that we arrived later in the rape-field have been a great loss? Does this not show how important it is to be at the right place at the right time? and what a great boon migratory bee-keeping can be? I extracted nearly 150 lbs. of fine rape honey; and not only this, 40 colonies had enough honey and pollen for brood-rearing; but I could also furnish other colonies with this new honey.

I should not have had such success if the frost had not destroyed the bilberry-blossoms, that never yield as much honey as rape; and so I may say that the great facility of my wandering system helped me to a gain I should not have had otherwise.

However, this is not the only case in which I have had good luck. There has not been one year when I did not wander with my bees more than once. Every year, in the beginning of July, I took all of them 30 miles to the buckwheat-fields, and in the month of August to the large plains of the *Erica vulgaris*.

Well, friend Root, what a great boon it would have been for me if I had had at that time a bicycle, and had been such a perfect rider on the wheel as you are! How easily would I have discovered by a ride, the best honey sources in the surrounding country! Yes, the bicycle has a future for bee-keepers, at last, in Germany.

Wilsnack, Germany.

To be continued.

[We will explain to some of our older subscribers that the hive used by friend Gravenhorst is somewhat after the pattern of the old straw skep, except that it is oblong, larger, and has movable frames. Instead of using boards for tops and sides of the hive, he uses woven straw. From the engraving it will be seen that the hive is opened only at the bottom. To examine into the brood-chamber it is tipped over, and the frames drawn out while it is inverted. The frames are self-spacing, and friend Gravenhorst is a firm believer in the idea of handling hives instead of frames. Well, as the reader will notice, the hives are all ready for moving. All that is necessary is to tie the cloth over the bottom, invert it, and set them up in a wagon, as shown in the cut. Perhaps such an arrangement would not be quite satisfactory to the bee-keepers of the United States; but it is nevertheless a fact that Mr. Gravenhorst is not only a practical bee-keeper, but one who gets the honey; nor does he waste a good deal of labor in doing it, either.

Yes, yes, friend G., the bicycle would be a great help to you; and we hope to hear, before many months, of your riding from one apiary to another as you may establish them.

We may state that Mr. Gravenhorst writes his articles in good idiomatic English, and so, of course, he is perfectly familiar with what has been done by English-speaking bee-keepers, not only in England but in this country. "Bilberry" is our word for huckleberry.—ED.]

HYBRIDS OR MONGRELS—WHICH ?

THE WRONG USE OF TERMS IN APICULTURE IN GENERAL.

By Rev. L. J. Templin.

The offspring of a cross between different species is a hybrid; and the result of a cross between different members of a species, or between different races of the same species, are mongrels. The offspring of hybrids is a hybrid, and the offspring of mongrels is a mongrel. Now, the question before us is: Are the German black or brown bee and the Italian bee distinct species, or are they only different races of the same species? Of course, if they are different species their crosses are hybrids; but if they are only races their crosses are only mongrels. To determine this question, it is necessary to inquire as to what are specific, and what are only racial or varietal characters. To speak of those qualities that do not constitute specific characteristics I will first mention that neither size nor shape is to be regarded as specific characters. We have but to look around us to see abundance of evidence of the truth of this statement. The horse, the ox, the sheep, the pig, the dog, and the hen, furnish abundance of evidence of the truth of this proposition. Compare the Percheron horse, weighing more than a ton, with the Shetland pony, two and a half feet high, or the deer-like Jersey cow with the "big ox," weighing two tons, or the poodle dog, seven inches long, with the enormous mastiff or Newfoundland that can almost carry a man; or, again, look at a bantam hen beside a Cochin hen, for examples; yet no one thinks of placing these respective pairs in different species.

As to shape, I need but mention the difference between the heads of the greyhound and the bulldog, and that between the carrier and short-faced tumbler pigeon.

A difference of instincts does not necessarily indicate a difference of species. The setter, the pointer, the trail-hound, and the bulldog exhibit very distinct characteristics; yet they all belong to the same species; and among hens we find some breeds that are very much inclined to be broody, while other races are almost entirely non-sitters. So the temperament of bees, their readiness or reluctance to go into the supers, their manner of sealing their combs, whether white or dark, and other minor differences among the different kinds of bees, may be only racial distinctions.

Again, color is not a specific character. A glance at the vegetable world, especially cultivated plants, will prove that color has nothing to do in marking the differences of species. Take the rose tribe, which varies in color from pure white to almost pure black. Yet all belong to one species. The same is true of the chrysanthemum, the portulacca, and scores of other flowering plants and shrubs. In the animal world the same rule holds good. I need scarcely call attention to the different species of domestic animals among which color has no significance as to specific distinctions. Among our various kinds of domestic animals we find all colors, and all shades and combinations of color. Take the horse, the ox, the pig, the dog, and the hen, and, in each of these species, all kinds of color prevail. Even in the sheep, that has been bred for color through countless generations, we find white, gray, grizzled, mottled, brown, black, and red. If in both the vegetable and animal worlds, so far as we know, color is never a specific character, is it not pushing our assumptions beyond warrant to claim that color in bees is a mark of species and not of only race or variety ?

We see, therefore, that it is in vain to look for specific characteristics in any external modification of any nature. How, then, may we distinguish between races and species? I answer, first: All the members of a species have the same anatomical structure. Gather together specimens of a species from the four quarters of the globe, and it will be found that the number, structure, articulations, and the relations of the bones are the same, with occasional and unimportant exceptions, such as an additional finger or toe, or other such slight variation. Secondly: A sure and unerring mark of distinction between the offspring of different species and of different races is found in the fact that the progeny of different races of the same species is fertile, and will propagate indefinitely, while hybrids are sterile, or have only a very restricted fertility, which generally disappears entirely in a few generations. When hybrids are fertile, after the first generation many of the offspring revert back to one of the parent types; sometimes to that of the father, and at others to that of the mother. If the hybrids continue to be prolific through several generations there comes in what is called disordered generation, in which the different individuals do not resemble either the parents or each other—are a group of very unlike individuals. Almost all known hybrids have been produced under the care of man, and it requires constant care to continue them in existence. But how different with mongrels! Without any care, and often in spite of watchful efforts to the contrary, mongrels will cross and mix in every shade and degree of relationship, and every individual will be as prolific as the original parents. The great trouble with races and mongrels is, to prevent their crossing and mixing to an undesirable extent. Now, with these general laws and principles before us, let us inquire whether the different kinds of bees that we know are species or races and varieties.

We have, or have had, in this country the German (or black) bee; the Italian, the Egyptian, the Cyprian, the Holy-Land, the Carniolans, and the Tunisian (or Punic) bees. I have studied all the literature accessible on the subject, and I have never seen a hint of there being any essential difference in the anatomical structure of any of these different kinds of bees. Nor have I seen any complaint or statement that the offspring of any of these crosses were any less prolific than their parents. Nor has there appeared any tendency to diminish prolificness as generation after generation has passed away. Now, here we have all the characteristics of races, but a total absence of the marks of species.

From the foregoing truths we must conclude either that our bees are not controlled by the general laws that govern in the natural world (for which we have no warrant), or we must admit that all the different kinds that we have are distinct races belonging to one and the same species. It seems to me, Mr. Editor, that this last is the only scientific conclusion to which we can come. If this conclusion is correct, as I believe it to be, we have not different species of bees, only races and their crosses, or mongrels. It follows that, to speak of hybrids, is improper, as there are no such bees in the country.

Canon City, Colo.

[It has been generally recognized that the term hybrid, as applying to a cross between Germans and Italians, was incorrect; but the name got started wrong, and at this time it seems to be quite impossible to correct it. Unfortunately, there are other terms in apicultural nomenclature that are about as bad. Dr. Miller could probably furnish you quite a list. He would have these dropped, and correct ones used instead. But as publishers of tons and tons of bee literature, the task of making these changes, to say nothing of the expense and the practical impossibility of getting the general public to accept them, leads us to forbear even the attempt. Bro. York estimates that we have sent out, or will have when the next edition is exhausted, some *62 tons* of the A B C of Bee Culture alone. This represents only a small part, comparatively, of other bee matter that we have sent out. Manifestly we can't change what has gone out; and if we do try to substitute new terms for what is to go out, the reading public will not. To illustrate: Our spelling is a reproach and a discredit upon all civilized nations using it. We got started wrong, and we now admit our inability to help ourselves.

By the way, you have given us some interesting facts in regard to species, hybrids, and mongrels.—Ed.]

MANUM IN THE APIARY.

FLORAL FERTILIZATION DISCUSSED.

By A. E. Manum.

"Good morning, Mr. Hill. Drive right into the barn, and have your horses fed."

"Thank you, Manum; but I can't stop long. I must hurry home to look after my sap. This, you see, is what we call a "sugar snow;" and, by the way, here is a cake of sugar that my wife sent to your wife."

"Well, there she is under the shed, feeding her White Wonders. She owns the hens, and takes the principal care of them. I know she will be pleased with this nice cake of new maple sugar."

"Now, Manum, have called to ask you a few questions. I don't know any thing about bees, and don't want to know. I would not have a hive of them on my farm. Why! they would sting me to death, or drive me off. But what I want to know is this: Do bees damage buckwheat? I intend to plow up an old pasture, and sow it to buckwheat; but my neighbors tell me that Mr. Elliot's bees will ruin it, and I have come to ask your opinion; and I want you to tell me *all* you know about it. If you tell me to sow the buckwheat I will do so; and if you say bees will damage it, I shall sow rye."

"Ha! ha! ha! Well, Mr. Hill, I have arrived at the point now where such things amuse me. They used to worry me; but now my neighbors have learned the facts by actual demonstration. Years ago I used to furnish buckwheat, free, to all who would sow it. I did so until all were convinced that the bees did it no harm. No, no, Mr. Hill; bees do not harm any blossom; on the contrary, they do good by assisting the fertilization of all fruits and grain that attract them by the secretion of nectar—honey. Therefore I advise you to sow the buckwheat, with the assurance from me that the bees will do it no harm. I am surprised that your neighbor, Mr. Elliott, has not taken more pains to convince your neighborhood of the fact that bees are a benefit to farmers."

"Manum, you just mentioned fruit, as though bees were a benefit to it; but I am sure they do it great harm; for I did not have a single plum last year, and but few apples."

"Did you spray your fruit-trees?"

"No. I did not. The bees worked on them so much I knew there would be no fruit, and the spraying would be useless."

"Did any of your neighbors spray their trees?"

"Yes, my nearest neighbor south sprayed three or four times, but he got only half a crop, and he was one mile from the bees, and he thinks if he had been two miles away he would have got a full crop."

"Well, Mr. Hill, I will tell you something of my experience with my neighbors regarding this matter. Some 23 years ago, when I commenced bee-keeping here in the village—I was then in the harness business, you will remember—all my neighbors were worried for fear they would not be able to raise any fruit, cucumbers, melons, or squashes; but by the second year I heard no complaints. The bees were in my own garden, and I purposely exhibited cucumbers, melons, and fruit, to all the neighbors, so that all complaints were hushed. I soon located an apiary at New Haven Mills, in an old orchard that had been neglected, and, consequently, had borne but little fruit for a number of years. As a natural consequence, that neighborhood was all astir over my locating an apiary in their midst, because, as they declared, they could raise no more fruit or buckwheat. Of course, I felt hurt at the cool treatment I received on all sides. I finally bought several bushels of buckwheat at $1.00 per bushel, and gave seed to all who would sow it. Some would not take seed, fearing they would lose their time; and even a few to whom I gave seed were persuaded not to sow it; but two years changed all this, and no one was angry because of the bees. Owing to the increase of my colonies I was forced to start another apiary. This third apiary I located in the town of Mankton, where the same prejudice existed as bad as in the other two locations; and I will simply mention one particular case which happened on Mr. Wm. P. Chase's farm, located half a mile from my apiary. This man was very much displeased at my locating an apiary so near him. Well, that spring he sowed two small pieces of land to buckwheat. These pieces were several rods apart, and both alike as to fertility, so Mr. Chase told me afterward. While this buckwheat was in bloom, Mr. Chase and his help were doing some work beyond these two pieces; hence they passed near them every day. One piece the bees seemed to work upon very busily every day, while on the other scarcely any bees were seen on it during its bloom. Consequently Mr. Chase would often remark to his men, 'Well, boys, Manum's bees have not found this piece of buckwheat yet, and I shall get a good crop here; but they will ruin the other piece, for they are fairly swarming on it.' And now, Mr. Hill, I have a surprise for you. When it came time to harvest this grain, the piece where the bees visited the most, there was a fine crop; while on the other piece there was not grain enough to pay or the harvesting; and Mr. Chase told me himself that, had it not been for the looks, he would not have cut that piece. He did, however, but made no attempt to thrash it. To further satisfy you, Mr. Hill, suppose we walk over to Mr. Chase's (he is now my nearest neighbor), and ask him if bees injure buckwheat or even fruits."

"No, Manum, I am satisfied with your explanation, and I shall not hesitate to sow buckwheat where I intended to. Now, Manum, before I go I will do an errand for my wife. You remember you sent me three of your No. 1 potatoes, with the request that they be cooked, that I might test their eating quality. Well, we did as requested, and my wife was so well pleased with them that she wishes you to name them 'Bristol Beauty;' and I think it an appropriate name, as I consider them the nicest and best potato I ever saw."

"Very well. You may tell Mrs. Hill that she has named the potato, and hereafter they shall be known as the 'Bristol Beauty;' and to recompense her for the good name, I will send her some of my No. 3 seedlings, that you may get into the seed."

Bristol, Vt.

DECOY HIVES.

A LETTER TO THE BOYS; AND IF YOU ARE NOT A BOY, SKIP IT.

By Chalon Fowls.

Perhaps some of the boys who read GLEANINGS will get the bee-fever this spring, and will be possessed with a consuming desire for a swarm of bees.

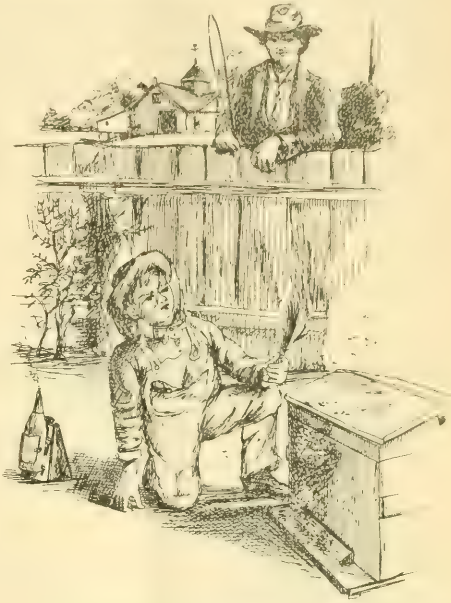
Now, boys, I'll tell you how to get them without either begging or buying. Trap them. You probably have trapped other game—rabbit, quail, etc. Well, you can trap a swarm of bees just as well, and it's just as much fun. You know if you catch some game yourself it's altogether different from what it would be if you bought it of some one. You say something like this: "See what I have caught—caught it *myself*." If caught alive without a wound, you value it still higher.

Well, now, to trap your bees you want an old hive if you can get one; or if you can get two or three to put in different places, so much the better. Now you want an old brood-comb to hang in each hive—the older and blacker the better. If you can't do any better, get two or three pieces of old combs and fasten them in the tops of the frames by means of melted wax. This is for bait. You want it old and black, so it will smell strong; but it should be free from the moths, and no honey in it. The bees will look for an empty hive to store honey in, but they don't want honey already stored in it. Now fill up the rest of the hive with empty frames; tie on the cover with stout twine, drawing it tight by twisting in a stick, and you have your trap ready. Now carry it to the woods; find some tree easy to climb, and draw up your hive by means of a cord. Finding a good resting-place for it among the branches, tie it securely; 10 or 15 feet is high enough if you can find a good place. Don't go very far into the woods. If the tree you select is near a field of white clover, so much the better.

Of course, you must have your traps ready just before swarming-time, so as to be ready for all the runaway swarms. If you visit your traps in the middle of the day you will see a few bees going in and out. These are the pioneers, or agents, sent on beforehand to stake out their claim. They'll work several days cleaning house before the swarm comes; but if the swarm doesn't succeed in running away you won't get them; but your chances are just as good for another. As soon as you know you have them, carry them home just at night. After letting down the hive with a cord, hang it to the middle of a spring-pole, and two boys can carry it home with hardly a jar.

Once in a great while the owner will follow a runaway swarm, and line them to a tree or your hive, as the case may be. In such a case he would have the first right; but he ought to be willing to pay you for securing them for him, and for your hive. But such a case seldom happens, as those who have large apiaries will not leave 50 or 100 swarms to run after one. But I once, some 10 or 12 years ago, caught a runaway swarm that was followed to the hive by the owners; but it was only half a mile, and they had but few bees at home. It happened this way:

Having obtained permission of my neighbor I fastened one of my decoy hives in a tree in his woods, about half a mile back from his house. He had a boy whom I will call John, because that wasn't his name. Toward night one day in June, John drove over to my place, saying, as he came up in a hurry, "I wa get you to come right over to our house and hive my bees for me. They swarmed this forenoon, and I tried to hive them but they wouldn't go into the hive, but just clustered on the front of the hive."



"Why, John, I don't see why you shouldn't succeed in getting them in. You didn't shake them into the hive, did you?"

"No; I just shook them down in front of the entrance, as you told me to."

"That's right; in hiving them, never shake them in or they will run out. Shake them outside, and they will run in."

"But mine didn't. They just ran up on the front of the hive, and they have hung there all day."

"Oh! but you oughtn't to let them. You should just brush them off and not let them cluster at all."

"But I was afraid they would all take wing and go off. I did brush off a dozen or so, to try to start them to going in, but they would go right back to the cluster; and father would just stand there in his bantering way, and say, 'Better let 'em alone; *you* don't know how to hive bees.'"

"Well, John, as it's so near night I can leave my bees, and I'll go over with you and help you to get your bees into the hive."

A few minutes' ride in John's buggy brought us to his home. As we drove through the gate his mother came out exclaiming, "O John! they're gone! they're gone! We tried to stop them; threw water, and drummed on a tin pan, but it was no use. They just went right straight to the woods, and your father ran after them, and he saw them go right straight into Chalon's hive."

At this John's father came out of the house, looking very much heated but triumphant. Looking quizzingly at John he said, assuming great superiority, "*You* don't know how to hive bees. *I* hived your bees."

Oberlin, Ohio.

FAX.

By Ellery Krum.

Why can't every bee-keeper have a little 'speriment station of his own?

A good way to make non-swarmers work to perfeckshun is to put 'em on top of the hives and fill 'em with seckshuns, adding more as needed. Try it.

Every feller to his own noshun, but I prefer to do most of my spring feedin' in the airly part of September.

Hives settin' facing the west are inclined to tilt a little to the south when the ground first thaws out in the spring.

Sum hunny on the market is not only flavored, but 'pears to be tinted a delikate color also.

I am shure if the bees had their way about the matter they would build the bottom-bars purt nigh as wide as the brood-comb is thick.

A frame of hunny in the hive left over frum winter will raise bout as menny bees as if fed fer stimulatin' purposes in the spring.

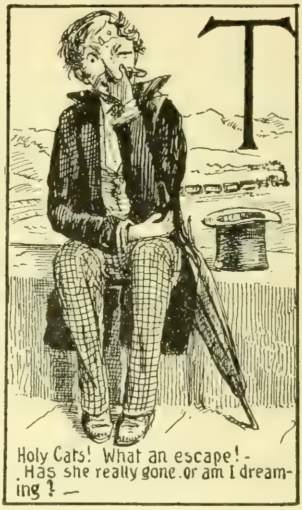
Have used the T super and seckshun-holder side by side; and I'd ruther use the holder, because the bottoms of the seckshuns are never built up against with burr-comb; and fur anuther reezin, that queens are not so apt to git above. Hunny wuz purty heavy last seezin, and yet the bottoms of the holders did not swag down.

Oh the trees wuz made fer blossoms,
  And the blossoms made fer trees;
And the hunny in the blossoms—
  It wuz made fer hunny bees.

[Another feature of the section-holder is, that wide wooden separators can be used, thus protecting from propolis the upright edges of the sections.—Ed.]

RAMBLE 106.

RAMBLER'S NARROW ESCAPE.


Holy Cats! What an escape! - Has she really gone. or am I dreaming ? —

THERE was really no danger threatening Eugenia. The yelping growl heard on that eventful evening was merely the uneasy notes of the coyote. These animals never attack a person; but, observing Eugenia's hysterical condition, and to avert unpleasant swoons, etc., the Rambler descended from his dignified position and escorted Eugenia to a place of safety, walking several feet in advance. Eugenia evidently had an unfavorable opinion of the wilds of California, with the loneliness, coyotes, skunks, tarantulas, scorpions, and centipedes. The advantages presenting themselves for the cultivation of that opinion I embraced with alacrity; and by the time we had arrived at the haunts of civilization Eugenia consented to take the next train. Eugenia's lunch-basket was a wonder to behold, and a wonderfully weighty thing to carry. "Thank fortune," said I, after lugging it into the car, "I do not have to provide for that depraved appetite." Eugenia was quite anxious for me to carry her pocket-book; but, not wishing to fall into any traps of that kind, I kindly but firmly refused, and reflected severely upon the bad sense of women in general and Eugenia in particular in not providing pockets for their valuables. No, I would not carry her pocketbook. Eugenia had a row of those big buttons on her cloak, and one had fallen off. She insisted that I should get down on all fours and search under the car-seats for it. I objected to the proceeding; and, while objecting, the train started with a glide, and I quietly bade Eugenia farewell and glided off the train.

I have reason to believe, however, that Eugenia has captured a cowboy. I obtained a very good photo of said boy, and will call him Eugenia's future.

So far as the Rambler is concerned, all future Eugenias and open letters of that nature will be treated with contemptuous silence. Good-by, Eugenia.

I return now to my ramblings; and this time it is with Mr. Wheeler that I travel to Temecula and Fallbrook. We start from Riverside, and journey through the pass known as Box Springs. The water is developed, and large boxes are sunk into the ground, making a sort of reservoir from which the water is conducted to where it is needed. The number of these developed springs and boxes gives the locality its name. There are several apiaries in this canyon; and as the entire collection of Box Spring Mountains is not many miles from populous Riverside, the number of apiaries is on the increase.

Our journey led through several small towns, and I remembered Wildomar in particular as being the place where Mr. Hubbard, of Riverside, had purchased some chickens. They were of the Plymouth Rock denomination; and when they arrived at the Hubbard mansion they were examined with enthusiasm by Mrs. H.; but for many days when they were called to their breakfast they would run away in the opposite direction. Mr. and Mrs. H. thought this a strange freak; and, after some thought, Mr. H. found the reason to be that the chickens had been purchased of a Wildomar Dutchman, had been called in Dutch, and, when the good United States "chick, chick," had been shouted to them they did not "sabe." Due training, however, by Mrs. H. has quite naturalized and Americanized them.

The Dutch way of catching chickens is also quite novel, and may give our American poultry-fanciers a hint, which will save much boisterous running. A long light slender pole, with a wire hook on the end of it, is the simple apparatus. The hook is stealthily applied to the neck of the fowl, and it is immediately a captive.

We found Temecula another shipping-point for a great amount of honey. The town is not so thriving as it was in boom times, and is sort of waiting for the next boom.

We stopped over night here and found the hotel-keeper a typical Californian. He was an ex-bee-keeper; sold his honey for 3½ cts. per lb., and on that low price went out of the business. Another factor among the reasons for quitting the business was that, on the lonely bee-ranch, his wife was attacked and dangerously bitten by a wildcat (Eugenias, take notice). The wife, however, was equal to the occasion, and got hold of it in such a way as to choke the life out of it. The town, therefore, had attractions for mine host and his family. The tinkle-tonkle of the supper-gong broke in upon our meditations; and upon gratifying curiosity I found it to be a large cultivator-tooth being whacked with a piece of iron. It made the valley echo, and, to all intents and purposes, it was as good as an expensive gong. We were rather late in getting to the supper-table, and I was placed opposite another rambler in the shape of a Temecula Indian, of which there is quite a sprinkling around the country. My opposite was very taciturn, and devoted himself strictly to the business of satisfying the inner man.

When we proceeded upon our journey the next morning we found, in the next town, what might be termed a natural curiosity; but it was not considered remarkable here. This nook in the mountains has the unusual phenomenon of a Rainbow every day in the year. Wet or dry, hot or cold, clear or foggy, that Rainbow is sure to be found. It is not of the prismatic order, but prefixes to the name, J. P. M.; and this Rainbow owns 200 colonies of bees, a large amount of land, is supervisor in San Diego Co., and the postoffice in this neighborhood bears the same name; and, on the whole, though the heavens are not spanned, this Rainbow is no mean affair, and walks and talks to some purpose among the children of men.

As we get through the pass from Temecula to Fallbrook we get into a more prosperous-looking country. We skirt alongside the Red Mountain Ranch, containing 800 acres, fully 600 of which is planted to fruit-trees, and of varieties too numerous to mention. From one portion of the road, as we wind around the mountains we get a view of the Pacific Ocean, only about twenty miles away. Frequent fogs, and the moisture resulting therefrom, enables the ranchers to grow quite a variety of products here without irrigation; and though Fallbrook has no present boom on, we met parties who gave such a roseate description of the town and its possibilities that one would think there was not another such town on earth. We begin to think, also, that, to be a true Californian, the town in which we live must be the subject of unstinted praise wherever we go, whether it deserves it or not. In Fallbrook we found Mr. A. F. Cate, quite an extensive bee-keeper, and in business as a lumber-dealer. In the latter capacity he handles bee-hives and sections, distributing many thousands among the surrounding bee-keepers. Mr. Cate had just received samples of the new sections from the Home of the Honey-bees, and was quite enthusiastic over their fine appearance. Mr. Cate is a producer of comb honey. In speaking of the relative merits of producing either comb or extracted honey, he thinks that, as it requires more skill to produce comb honey, the true bee-keeper will not be content to continue to produce extracted, but should aspire to the higher degree of comb-honey production. The comb-honey idea presented in this manner has caused a spell of reflection to come over the Rambler.

Mr. Wheeler and I finished our southward journey at Fallbrook, and, soon after, returned to Riverside, making a very pleasant preliminary trip to what is to follow in the next experience of the RAMBLER.

SHEETING WAX FOR THE GIVEN PRESS.

PLAIN SPECIFIC DIRECTIONS.

By R. L. Taylor.

It should be understood that the dipping of wax to be made into foundation by the press is a very different operation from that of dipping it for the roller mill, and this for the reason that, since the roller mill thins and equalizes the sheet in the process of converting it into foundation, no especial care need be used to make it of any given thickness or even of equal thickness. But with the press the case is quite different; for when that is used the foundation produced corresponds with the sheet from which it is made, both in thickness and evenness, as well as in length and breadth.

One reason given to account for the fact that foundation made on the Given press has not become popular is that it does not look as well as does that made on the roller mill. It is true, the latter has a smooth shiny surface on account of the great pressure exerted upon it by the rollers, and a certain trim appearance from the fact that the edges of each sheet must be cut to bring it to the required dimensions—a process not necessary with Given foundation, though, of course, it may be used; but whether these peculiarities entitle the roller foundation to be called superior in appearance is a matter of taste. Many would call highly calendered printing-paper the finest in appearance; but the best taste by no means accords it that distinction; and, by the connoisseur, a book with untrimmed leaves is esteemed a luxury. The adage, "Handsome is that handsome does," ought certainly to hold in the case of foundation.

But another point made against the appearance of the Given foundation is, that the sheet is of uneven thickness, and this, since it may be presumed in some degree to affect its utility, has some validity unless the objection is substantially overcome; and to show how this may be accomplished to a satisfactory degree is one of the points which prompted the writing of this article. My aim will be to describe a cheap process that will do well enough for one who desires to manufacture foundation sufficient only for himself and neighbors; but from it one who looks for a more extensive business can easily plan an outfit to suit the circumstances of his case.

An old wash-boiler answers very well as a dipping-tank for sheets for section foundation; but another vessel is required for melting wax to keep up the supply in the boiler, and for this a second boiler or even a less expensive vessel will do. For dipping for brood foundation there will be needed, in addition, a dipping-tank about 4x12 inches by 2 feet deep, which should be fitted with four feet to raise it an inch or so from the bottom of an outside tank which is for the purpose of keeping the first tank surrounded with hot water to prevent too rapid cooling, and should be 8x16 inches by 25 inches deep. The dipping-boards are best made of fine straight-grained pine $\frac{5}{16}$ of an inch thick, and of a width and length to correspond with the dimensions desired in the foundation. The swelling of the boards in soaking will just about make provision for the shrinking of the sheets. The boards should be as smooth as they can be conveniently made, and the sharpness of all their angles should be carefully preserved. The boards for dipping for section foundation may be any convenient length, but must not be wider than a single piece of foundation for filling a section is required to be—that is, it is very important that, for ordinary sections, it be 3¾ in. wide and not 7½ in. Sheets of double width can not well be made of the proper evenness and thinness, and it follows that the board must, in dipping, be used edge first, not end first. For convenience in dipping I fit into the center of one edge of these boards a slim screw about 1¾ or 2 inches long, putting it in far enough to give it a firm hold, having first slipped on to it a bit of thick leather, which is for the comfort of the fingers in grasping the head of the screw. The screw is to serve as a handle in making the first immersion. The screw is put into the end of the boards used for brood foundation, for they may be dipped end first, though, if one chooses, they may be as well used the other way, in which case the wash-boiler would answer very well for a dipping-tank.

Presuming that the wax to be used for dipping has been properly cleaned, and it is desired to dip for section foundation, the next thing to be attended is the soaking of the dipping-boards, which should be continued for two or three days before the dipping is to begin, though a less time will do if warm water is used for the purpose, and from six to fifteen boards should be provided, according as the dipper has one, two, or three assistants. For soaking the boards, and for use in the process of dipping, any good-sized tub or the half of a kerosene-barrel, if well cleansed, will answer. The water should be soft, and it is quite important that common salt be added at the rate of a quart to ten or twelve gallons, and the water should be well heated the evening before the dipping is to be done, and made somewhat warm again in the morning if it entirely cools.

The next thing to be done is the preparation of the wax for dipping, and this is the most critical part of the whole process. The most natural way to do this is to keep up a hot fire and bring the contents of the boiler to a hard boil in order to hasten the melting of the wax; but this is very objectionable, for it not only makes the room unnecessarily warm, but it brings the wax and water to such a high temperature that it takes longer to cool them sufficiently for dipping than to prepare the wax with a fire kept more under control. Following the course I shall now describe will prevent much discomfort, loss of time, and vexation arising from a failure to understand a variety of difficulties which the other course produces.

As early in the morning as may be, put into the boiler at least three or four inches of rain water and as much more as may be necessary to fill it to within three or four inches of the top after all the wax, intended to be melted at first, is put in, and make a good fire of light wood; then, as soon as the water begins to warm, commence to put in the wax, and continue to do so as fast as a convenient place is found for it, keeping up a moderate fire of the same kind of wood. If the wax is in thin cakes, or well broken up, it will be an advantage, as it will thus melt quicker with less heat.

As soon as a good proportion of the wax is melted, a thermometer that will register the boiling-point of water is well nigh indispensable. Now hang the thermometer into the contents of the boiler, and observe the temperature indicated. But be prepared to know certainly whether the bulb of the thermometer is in the wax or the water. You may be inclined to think that, if you let the thermometer reach 170°, it will soon cool sufficiently. You set the boiler off the stove at that point, but you are surprised to find that, instead of cooling, your wax continues to get hotter and hotter. The reason is, the bulb hangs in the wax, and fails to reveal the fact that the water has become much hotter than the wax; and after it is removed from the stove it continues to impart its heat to the wax. It is well, therefore, to pay attention to the heat of the water as well as to that of the wax.

The aim is, to get the wax to 155° F., the right temperature for dipping, and at the same time have it all melted. It is impossible, owing to the varying proportions of water and wax, and to the difference in the amount and size of the pieces of unmelted wax, to give an exact rule for removing the boiler; but in a general way, where the wax is at about 155°, there being but little unmelted wax left, it will be found nearly right, and at this point it is to be set off on a box of convenient height. If there is other wax to be added, that should, in the mean time, be heating, and also a kettle of water; for it is by the addition of hot wax and boiling water that the temperature of the boiler is to be maintained. A close-fitting board as a cover for the boiler will also assist if put on whenever dipping is intermitted for even a short time.

The thermometer is to be retained in the wax, and its standing observed from time to time. Some lots of wax will dip at a little higher temperature than others; and the higher the temperature at which it is dipped, the thinner can the sheets be made. When it is at from 155° to 160°, and all or nearly all melted, try it with a dipping-board. If the sheet cracks irregularly, either the board is too cold, the wax too warm, or there is a cold draft in the room. Shut out the draft. A little use will warm the board, and the wax, if too warm, will soon cool sufficiently. If there is a straight horizontal crack in the sheet there has been a sudden jar or sharp stoppage of the board in its descent into the wax.

When every thing is ready, remove the boards from the tub to let the water drip off a little; then take each one in turn by the leather head of the screw and let it steadily and rather quickly down into the wax to the upper edge, but not so that the upper edge is covered with wax, and withdraw it at once. Letting it drip a moment, pass it to the other hand, reversing it at the same time, and sink the other edge into the wax an inch, more or less, according to the weight you desire to give the sheets. When the board has dripped a moment, drop it into the water already in the tub. Almost at once the sheets may be removed from the board, when it is ready to be used again. A little cold water should be added from time to time to that already in the tub, to keep down the temperature.

When every thing is right, the sheets present a smooth even appearance, and break evenly all around from the ribbon of wax on the edge of the board; and with a small boy or girl to pass the boards promptly, the dipper can keep both his hands busy, so that the dipping is done quite rapidly. The hand which dips the boards the second time must be protected by an old glove, to prevent the inconvenience of a blistered thumb and finger.

As soon as it is perceived by the thermometer that the wax is sensibly cooling, some hot wax must be added, or, when that is not to be had, boiling water. A tea-kettle of water may be added at one time, but not so much of the hot wax.

Even when a film of wax begins to form on the surface, dipping may still be carried on if it is kept pushed aside; but more satisfactory work will be done if the wax is maintained at a temperature a little too high for the formation of the film. If either the wax itself or the water below gets too cold, the sheets have a blotched uneven appearance.

Little need be said in addition with reference to the dipping of the sheets for brood foundation. The process is analogous, and a much less difficult one than the other. A little attention will have to be given to learn how deep to dip the board the second time to get sheets of the required weight; but in most cases, somewhere from one-third to two-thirds its length will be found about right.

I have in the foregoing dwelt upon the more important and the more difficult points of wax-dipping for the press, necessarily omitting minor matters which can be easily learned or readily inferred, on account of the magnitude of the subject; and I feel sure that what I have written will be of substantial service to the novice—at least, it cost me many dollars and much vexation to learn it.

Lapeer, Mich., Mar. 23.

[Your instructions will be applicable not only for sheeting wax for Given presses but for rolls as well. Of course, for the latter it is not so important to have the wax of uniform thickness.—Ed.]

HONEY PRODUCTION IN CALIFORNIA.

APICULTURE OF THE EAST AND THE WEST COMPARED.

By Prof. A. J. Cook.

We all remember the story in the old spelling-book, which surprised our unsuspicious minds, when children, of the "bull goring the ox," and how "circumstances alter cases." One finds the same surprisingly true as he locates in a new country. In Michigan and the East, the case of "comb versus extracted honey" stands about this way: It takes an expert to succeed best in securing the beautiful comb, and he will not produce more than about two-thirds of what he could get if he worked for extracted honey. Yet he has a more beautiful and readily salable article, which brings, often, nearly or quite twice as much in the market as he would secure for an equal weight of extracted honey. Moreover, there is a peculiar fascination in the production of comb honey which is lacking in the work of extracting. On the other hand, it must be conceded that the novice will usually succeed better in running his apiary for extracted honey; will often secure double the amount, and in a poor season is not vexed with a lot of partially filled sections on hand at the close of the season.

I came to California intending to secure a small apiary, and expected to work exclusively for comb honey, as that always had a peculiar fascination for me, and I believed I could realize as great profit.

I was fortunate, a few nights ago, in having as my guests Messrs. Rambler and Wilder. We discussed this question, and I learned that, in California, the matter had a changed aspect, from the peculiarities of this region. Nearly all in Southern California produce extracted honey. In the first place, the honey-house, or cabin, is often very primitive. Ants are very numerous and obtrusive. It is easy to avoid the ant nuisance if we work for extracted honey, but very difficult, almost impossible, if we produce comb honey. Again, the bulk of the honey goes east, and is jarred and pounded for days. Extracted honey is safe in barrels or cans, and goes safely, and arrives at its destination in as good condition as it set out. Comb honey, on the other hand, is often seriously mutilated, and the eastern dealer must make a large discount to save himself. Hence the shipper is greatly disappointed when he receives his returns.

I was quick to see the reasonableness of these suggestions; and the very next morning I ordered a Bingham uncapping-knife. I shall still work for some comb honey, for I wish to make the acquaintance of those ubiquitous ants, and I must enjoy putting on and better taking off the sections. Perhaps I can find a home market, and so escape the dangers of shipment, especially as I expect to give the subject of marketing California honey most earnest study this coming year. Has not comb-honey production earnest advocates among California honey-producers? Let us hear from them.

Claremont, Cal.

SOME CALIFORNIA JOTTINGS.

ALIGHTING-BOARDS; A VALUABLE ARTICLE.

By E. H. Schaeffle.

In an issue of Gleanings an engraving shows the different styles of hives used in Europe. What struck me most was, that they all had wide alighting-boards that sloped out and down to the ground; and I have sometimes wondered why an alighting-board was not provided for the Dovetailed hive, as the two-inch projection is far too narrow. I have all of my hives set up about 18 inches from the ground, to get away from the toads, mice, ants, grass, and dampness of the soil, to say nothing of the added convenience in handling; and I find it a very simple and inexpensive matter to furnish each hive with a broad slanting alighting-board as follows: To a four-inch-wide strip of quarter-inch stuff nail two strips of ⅜ stuff, with clinch nails. Have these strips project 3 inches beyond the side of the four-inch board, and nailed so that they will just come inside of the entrance on each side. Bevel off the top where it slips into the entrance to the hive, so it will drop down and give a slanting alighting-surface. The cross-sticks, it will be seen, must be nailed on top of the board. On other hives, where the entrance is too small to admit of any thing being added, the boards are held in place by the strips being slid under light nails driven into the sides of the hive. This wide porch is a source of constant pleasure to the bees, which can be seen promenading back and forth in evident enjoyment, while the loaded workers work all the faster by being able to drop at once on arriving at the hive, and seldom miss this wide promenade.

TOADS.

The toad is too good a friend to quarrel with, as he destroys moths by the thousands on his nocturnal rounds, and he is easily kept from mischief by simply keeping the hive a foot above the ground and leaving nothing that he can crawl up on to the hive-entrance.

KILLING ANTS WITH INSECT POWDER.

I bought a lot of bees that the owner swore he would brimstone before morning if I did not remove them. On examination I found half of the hive filled with the large black wood ants; and, my! how cross the poor bees were! I turned the hive over and dusted insect powder freely between the combs filled with the ants, and exterminated them. I have frequently used it on the trails of the ants, and have never seen that it had any injurious effects on the bees. Where the ants are not making their home in the hive, but simply carrying off food, a mixture of honey and Paris green will be carried away by them to their nest, and exterminates the colony. When this poison is used, care should be taken to place the mixture under a tight box and leave a space just large enough for the ants to enter, but effectually keep out the bees.

YELLOW-JACKETS.

These yellow-coats are sometimes troublesome; and, from gathering up the larvæ brought out over night, and left on the alighting-board, they grow bold and enter the hive; and, when their entrance is disputed, I have seen them conquer an Italian bee and carry it away. Their well-known fondness for fruit, and their ability to tear and cut into fruit and grapes, often brings the honey-bee into disgrace and its keeper into trouble. I find two ways of extermination equally good. One is to bait the common gauze fly-trap with raw meat; the other, to bait a piece of raw meat with strychnine, and hang it where the yellow-jackets and nothing else can have access to it.

BEE-BIRDS.

These troublesome birds may be of some value to the fruit-grower, but they are a costly benefit to the bee-man; and my remedy is the shotgun. Cruel, do you say? Well, perhaps it is; but I have seen as many as 25 bee-birds at one time, at work catching my bees, and human nature couldn't stand that any more than a shepherd would tolerate a wolf among his flocks for his services in the destruction of rabbits.

ROBBER BEES.

I have found only one effectual way to stop robbing. I take a piece of 4x4 scantling and saw out a groove ¼ inch square on one side. I then place this across the entrance so that the bees must pass in and out through this groove. At the same time I open the ventilators, shade the hive, and look after the block of wood to see that the passageway is not blocked by dead bees. I have a box with a few bees in it that have lost their queen. The robbers do not enter this hive, but bounce down on the alighting-board and garrote the guards. The robbers rush up to the guards, who put out their tongues and evidently disgorge their honey, as robbers do when confined to a hive, and feed its stores through wire mesh to other robbers on the outside. This latter is quite common, but I have never seen the "stand and deliver" game worked by the robber bees before.

TRANSFERRING BEES.

Has any one tried drawing the bees up into a hive with full sheets of foundation and at least one frame of brood and supplies, then placing a queen-excluding zinc over the new hive, setting the old hive on top, and at 22 days slipping a bee-escape under the old hive, and having the bees all go down into the new hive? I believe it would work with that frame of brood in the lower hive. By this method the bees would be all together. You are sure of a queen in one of the hives; and if bad weather follows, the bees have their stores right at hand. I prefer transferring at once and done with it. With a long sharp knife *kept hot* I can readily cut out the combs and slice off any bulges, while a mixture of three parts rosin and one of wax will hold any comb if enough is used. Beeswax alone won't do, as it is too greasy and doesn't stick to the wood. When thus transferred the job is done, while you would be drumming by the other way. The bees have all their comb ready built, and proceed to business.

ENTRANCE DIAGNOSIS.

Mr. Dayton is good on that; but why did he omit to state how a queenless colony could be picked out by entrance diagnosis? Go out to the bees any morning, when they are packing in pollen; and when you have found a hive where the bees bring in no pollen, that hive is queenless; for, as the bees have no brood, they need no pollen and don't bring it in.

ENTRANCE FACE.

Where bees sit "shoulder to shoulder," and all "face front" alike, it is undoubtedly very convenient for the apiarist, both in watching and working the bees; but by that arrangement queens on their virgin flight get into the wrong hive on returning, and you soon have a large per cent of queenless hives. To obviate this I set my hives, one facing the east, the next the southwest; one to the west, and then allow about a four-foot space to the next hive. This economizes space, and gives each hive a different face in each lot of three.

Murphys, Cal., Mar. 18.

JAKE SMITH'S LETTER.

MR. *A. I. Gleenings—deer Sir:*—Mr. Dinant has bot a new place and moved onto it. It's much closer to our place, and we visit back and fourth a good eel. The other day Mr. Dinant and his wife was to our house, and our dotter Carline was a showin her new cloak. It had sleeves like elefants' ears, and come up so high that you coodent see her face when she stood sideways. Mr. Dinant began to plague her about it.

Says he, "Do you have that kind of a sleeve, Carline, because it's becomin to your style of beauty, or do you have it like the mainsail of a ship to help you along in a high wind?"

"For neither," says Carline; "it's the fashun. You woodent want me to look like I come out of Noah's ark?"

"Well, you don't," says he. "If you'd come out of the ark in that rig, you'd frighten all the animals. Now see here," says he, "do you expect wimmen will ever have a chants to vote so long as they're so weak-minded? The fashun says cloaks must have no sleeves, and you all freeze your arms off. Then it says elefants' ears, and elefants' ears it is. Talk about puttin the rains of goverment in the hands of silly wimmen without backbone enuff to stand out agenst a fashun, no matter how hidgeous it is, if only the leaders give the word! You don't find *men* led around in that style."

I begun to see mischief in Carline's eye, and, says she, "Oh, no! you men never let any one lead you around. It seems to me I heard you and pa talking about puttin good clean men in office, and you said it would never do to have a drunken sot like Barney Hill put up for a candydate just because he had lots of money, and could controll votes; but for all that the leaders of your party put him up, and you both walked up like little men and put in your votes for him. Oh, no! *you're* never led around to follow fashun. And then," says she, "your party said the tariff must be so and so, if the country was ever to have prosperity, and you two was sure nothin else would do, you were very sure. But when your party at Washington found that might make trubble for them at the next eleckshun, and turned around just exactly opposite, you haddent a word to say. Oh, no! no fashun leaders can pull *you* around."

"Now see here, Carline, that isn't fair," says Mr. Dinant. "We werrent talking about politicks, we were talkin about fashuns. A man has to follow his party if he don't want to be looked down on, but you don't find men all followin like a lot of sheep when it's somethin where no principle's involved."

"Henry," says Missus Dinant, "how do you spell *are?*"

Mr. Dinant looked puzzled, but I think he was kind of glad to change the subjeck. "How do you spell *are?*" says he. "Why, *a-r-e*, of course."

"Is it wimmen or men that make the dickshenary?" says his wife.

"Men," says he.

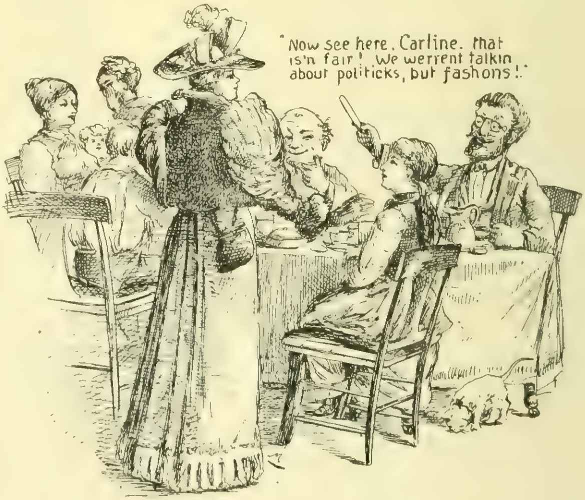
"So it's men that put that last *e* in are," says she, "and you men all follow the fashun insted of spellin it common-sense like, *a-r*."

"But *a-r-e* is the right way to spell it," says he. "That's not followin any fashun, that's only spellin it right."

"What makes *a-r-e* right any more than *a-r?*" says she.

"Why, because evry buddy spells it that way, and it's that way in the dickshenary."

"And if evry buddy spelt it *a-r*," says she, "then *a-r* would be the right way, and it would be that way in the dickshenary."


"Now see here. Carline. that is'n fair! We werrent talkin about politicks, but fashons!."

"I spose so," says he. "Of course, there's no use in that last *e*, but it's there, and there's no way to change it."

"No, it can't be changed, just because it's the fashun," says she. "And that's where you're worse than the wimmen. A silly fashun has made you spell that word with an *e* on it for a hundred years, and I don't know how much more, and you haven't backbone enuff to change it, while the wimmen change their fashuns."

"But there's no way to change the spellin," says he.

"Isn't there?" says she. "You know they used to spell *Atlantic*, *Pacific*, *optic*, and all such words, with a *k* on the end. Some one had backbone enuff to leave off the *k*, and now evry buddy does it. Then we had *honor* and *favor* and such words with the letter *u* in the last syllable. They still spell that way in England, but nobuddy does this side of the Atlantic otion. There's no law that makes you keep on spellin so many words in a foolish way, and I think you better let up on Carline for followin the fashun when you're doin a good eel worse."

"Maybe I better not spend any more time tryin to spell in the fashun," says I.

Zed had been settin quiet, and seemed to be reedin GLEENINGS. He spoke up then, and, says he, "I've counted over a hundred sighlent letters on one page of GLEENINGS. If they would leave out all the sighlent letters we could have a good bit more reading in it, and lern more about bees and onyions."

JAKE SMITH.

CALIFORNIA ECHOES

By Rambler.

Looks rather discouraging for a crop of self-hivers, non-swarmers, traps, etc., for the coming season.

She said pa always stopped so long to talk when he met a bee-man that she felt like flying. The fidgety thing! I've no doubt that pa sometimes wished she would.

The best brush for removing bees from combs is the Mexican fiber duster. It has quite a voluminous head and a rolling motion with it; just cleans a comb instantly. This excellent "machine" is sold by novelty dealers.

It is ducks this time that can not be successfully reared where bees abound. If they sip water from the same pond, the voracious duck swallows the bee, taking it for an innocent fly. The bee thrusts its sting into the internal ramifications of the duck; result, a dead duck; post-result, bees must go.

Good authority says that sugar syrup, when fed to the bee, is not changed by the bee, but from absorption of chemical matter from the comb in which it is stored. Let the bee store the syrup in old comb, where it comes in contact with cocoons instead of wax, it remains sugar syrup. Store it in fresh new combs, and it absorbs a wax aroma, and thus the so-called change. Apropos, see what Dadant says about rendering wax with acids, page 211, GLEANINGS; it destroys its perfumery, odor, etc.

THE LARK.

He rose, and, singing past from sight,
  A shadow kindling with the sun,
His joy ecstatic flamed, till light
  And heavenly song were one.

That is what the lark has been doing all winter in this sunset country. The mockingbird is now prospecting around for domestic purposes. The Alpine bluebirds are unusually plentiful and brilliant now. Oh, yes! we have some birds in California.

Three more live California bachelor bee-keepers have gone and got married—Mr. Holley, of Fillmore (I bet Mrs. McIntyre had a hand in the match), Mr. Zanft, of Riverside (just as though there were not odd names enough now in the world without raising any more); then Prof. Guenther, of Redlands, the highly accomplished violinist, played right into the arms of Cupid. Well, they must abide the consequences. The Rambler has given them fair warning in the past.

Apropos to the above, I would call attention to the fact that a Chicago woman, who has been married seven times, says that all men do not bear suffering alike. Nothing like experience to teach women these things.

TO SAVE HIS BROTHER.

SANTA ANA, February 17 — George Emerson, a prominent young man of this city, shot and killed Louie Yorba, a half-breed Mexican, at 8 o'clock this morning, in Santa Ana canyon, about twenty miles from this city, during a quarrel over the possession of a Government claim which young Emerson and his older brother had recently filed on. It seems that the Mexican took possession of the claim during the absence of the Emerson brothers, and upon their return attacked the older brother with a club, hoping to drive him off the claim, whereupon young Emerson pulled a gun and fired, killing Yorba just as he raised the club to strike his brother. Both young men drove to this city at once and gave themselves up. The one who did the shooting is now in the custody of the Sheriff. Yorba's body was brought to this city to-night. He was shot several times, one bullet penetrating the vicinity of the heart. It is claimed the shooting was done in self-defense.

The Emerson brothers spoken of above are successful bee-keepers; and the claim over which the fatal quarrel occurred was filed and occupied for a bee-ranch.

SUPERS.

THEIR RELATIVE MERITS AND DEMERITS SET FORTH; THE SINGLE-TIER WIDE FRAME PREFERRED, AND WHY.

By R. L. Taylor.

Dr. Miller writes me, in response to some notions I advanced in a letter to him, that he was going to tear me into little bits; so, perhaps, in anticipation, I am warranted in undertaking to criticise some remarks he makes in GLEANINGS of March 1, page 190, on the above subject, which I think are fallacious, and calculated to mislead the inexperienced.

I have not used the section-holders, but have used the T supers to some extent, and the Heddon super and the wide frames very largely.

The T supers I have unanimously discarded. They have one advantage; and that is, they can be emptied rapidly, but not nearly so rapidly as can the Heddon super, if the time required to get the separators and the "little top separators" out of the honey, and then what a multitude of the two kinds of separators there are, either to clean and look after, or else to renew! Besides, I think it is fair to say that at least twice as much time is required to get the sections fixed in the T supers, particularly if the sections, as most one-piece sections do, begin to assume the diamond shape.

But Dr. M. says, "The Heddon crate will not allow the use of separators, and that is a necessity when honey is to be packed for shipping." That is news in Michigan. I have produced a good many tons of honey in these cases, and never had any trouble with the packing. A half-dozen sections in a thousand would cover on the average those that are rejected, scarcely more than when separators are used, for occasionally one will be fastened to a separator, and so must be excluded. In a good season there would be practically no difference; substantially all are readily packed. Of course, full sheets of foundation are used. Then the Heddon case has the added advantage that sections filled in them contain considerably more honey, so that less foundation, fewer sections, and fewer shipping-crates, are required. For a good season I ask for nothing better, all things considered; but in poor seasons it is liable to the objection that the bees with their spare time can propolize the top and bottom of the sections with too much facility, and the T super is equally liable to the same objection.

Dr. M. says of the wide frames, that they are so generally discarded it is hardly worth while to discuss them. I do not know how generally they are discarded; but the truer *that* is, the greater the need of discussing them, for I consider the single-tier wide-frame super without an equal, taking one season with another. Cleaner sections of honey, more completely filled and capped, can be obtained in it than in any other I have ever tried. This is the fact: I shall not stop to inquire for the reason. The first cost is but little if any more, and the parts are all permanent and durable. It takes less time to fill it with sections than it does the T super, and scarcely more to empty it, and it will be found to contain on the average a less proportion of *partly* filled sections than other supers. But, of course, it must be accurately made. The top and bottom bars of the frames should be cut a little bowing, and both nailed to the end-pieces bowing in, and this bowing tendency should be exaggerated by the method of fastening on the tin separator. I feel sure that, if comb-honey producers generally would try wide frames thus made, and learn how to use them, it would not be long true, if it is now, that they are generally discarded.

There are some other statements of the doctor which should have examination, but this must suffice for the present.

Lapeer, Mich., Mar. 10.

[Say, Doctor, it does us good to see Taylor get after you so hard, apropos the T super.—Ed.]

ARTIFICIAL COMB.

WHAT THE GERMANS HAVE BEEN DOING.

By Dr. C. C. Miller.

Before me lie two samples of comb with which the bees have had nothing to do except to secrete the wax from which they were made. When I say *comb* I *mean* comb. I don't mean foundation with unusually high side walls. I mean *comb*. And as I look at it and admire it, I can not help thinking that again the boasted inventive genius of the Yankee is outdone by what we are accustomed to think of as the plodding German; for this is no triumph of American genius, but was made in Germany by Otto Schultz, the man who has done much to bring the mannufacture of foundation to a high state in Germany. The inventor, however, is Pastor Warnstorf. The samples were sent to me by the kindness of C. J. H. Gravenhorst, the able editor of the *Deutsche Illustrierte Bienenzeitung*. Each is about two inches square.

While an experienced bee-keeper might easily distinguish between these samples and the natural product of the bee, he must perforce admire the beautiful finish of the product, and its perfection with regard to uniformity. The one piece is worker, the other drone. The worker comb is an inch in thickness, the cells being of proper depth for worker brood. A thick septum makes it necessarily thicker than natural comb when it is new, but old worker comb will be found an inch thick. It has the appearance of worker comb after it has been shaved by the uncapping-knife for extracting. I count 11 cells to 2½ inches. We generally count worker comb 5 cells to the inch. That would make 12½ cells to 2½ inches instead of 11, making it seem that the cells of the present specimen are wider than the natural. I suppose, however, that they are the same, for there is more wax in the walls than in natural comb.

The drone comb has 9 cells to $2\frac{7}{16}$ inches. Natural comb would have 9¾ cells to the same measurement. I suppose the thickness of the cell-walls makes the difference. The cells are about ⅞ of an inch deep, but they are on only one side of the comb. There is no reason why they can not be made two-sided as well as the worker comb. But it is considered better to have them one-sided, as they are not desired for brood-rearing, but for honey only. One can readily see the advantage for extracting, to have combs that need no reversing. They can be put into the extractor, turned slowly at first, then the speed increased to its highest, without any danger of breaking from the weight of honey on the opposite side.

Pastor Warnstorf's invention was made public more than a year and a half ago, and at that time it was thought that bees would not use such combs for brood-rearing. Further trial has shown that, when put in the middle of the brood-nest, the bees gnaw down the cells to the proper depth and rear brood in them. After all, that matters not, for who wants to put extracting-combs in the middle of the brood-nest? So far, I think not much has been said in favor of using these combs other than for extracting-combs, one objection to using them in the form of worker comb being that fewer bees could be raised with the same surface of comb. In the same frame the natural comb would contain a fourth more brood. Yet it would be no small advantage to have worker combs that could be stuck lightly in a frame with little care for fastening, no wiring, no stretching, and every comb as true as a board.

It would be unwise at this time to say that this artificial comb with cells full depth will come to be as largely used as foundation, and it would be still more unwise to say that no importance attaches to it. Some one may say that, if it has been before the public for a year and a half without more being heard of it, not much is likely to be heard from it. Please remember about the first progress of comb foundation. As far back as 1857, or earlier, Mehring made his first foundation; but it was something like ten years before any thing of the kind was seen in this country.

Certainly very great importance has been attached to the matter of making high side-walls to foundation, and here are side walls to any desired height. Even if the cells should be only half depth it would be a great advantage. One important question relates to the cost. At present I believe artificial comb is sold at about the same price per pound as foundation. At that price, of course, it will cost more than foundation for the same surface. In an article written by Pastor Warnstorf, early in its history, he speaks about making three feet to the pound. How much it differs now I do not know.

If this article should come into general use, there will undoubtedly be improvements in its manufacture. It was a good many years after Mehring's first trial before friend Root turned out such beautiful foundation-mills in Medina. Three years after the first foundation was made, it was said triumphantly that such progress had been made that one person could easily make more than a hundred sheets a day. How many hands would the Roots and the Dadants now have to employ if one hand could turn out only a hundred sheets in a day? So we may expect improvement in this.

It would be quite handy if such combs should come to be a staple article, so that a raiser of extracted honey, running short of combs, could send to the supply-dealer and at once put in his hives all he needed. Bulkiness would make freight or expressage more, and a doubt may arise as to their carriage without breaking. I should expect no difficulty on this latter score. The samples I have received came direct in the mail from Germany, put loosely into a wooden box with no packing whatever. Some of the outer cells are broken, but the remainder seem as perfect as if they had just left the press.

Marengo, Ill.

[Now, Dr. M., we are sorry we can not agree with you. A sample of the very same make of comb is before us. While it is true that it is quite an achievement, it is a long way from being perfect. It is so heavy and clumsy, in our estimation, that it can never come on to the market. Why, a piece of it weighs three times as much, by actual test, as the same size in square inches of comb built from *heavy brood* foundation. Its cost, then, must necessarily place it away beyond what bee-keepers can afford to pay, even if it were practicable. There is a waste of brood, a waste of room, a waste of wax, and a waste of inventive genius that might more profitably be spent in other directions. After all, foundation is practically drawn-out comb in the flat; for in from 24 to 48 hours, under favorable conditions, it will be converted by the bees into comb. There is not one bee-keeper in a thousand who orders his hives nailed and painted, and all because of the extra transportation charges on such goods set up; therefore we argue that, even if artificial comb could be made in its perfection, bee-keepers would still order foundation, because the comparatively small bulk of it represents a very large bulk of comb, and because the transportation charges of the comb would be beyond their reach at present prices of honey.

The samples of artificial comb sent out by Mr. Weed a few years ago was, in our estimation, very much nearer perfection; and while the bees apparently accepted it, they soon showed their aversion to it, and it was abandoned. No, no; we do not wish to stand in the way of progress, nor discourage invention; but it seems to us that our German friends are pursuing a will-o'-the-wisp.—ED.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO, N. Y.

POLLEN NECESSARY FOR BROOD-REARING.

Question.—Is it necessary for bees to have pollen in the hive for them to raise brood?

Answer.—I believe that, if such a condition were possible as not having a single particle of pollen in a hive, and where none could be obtained by the bees from any source, no brood could be reared and brought to perfection; but I doubt the possibility of there being such a condition as absolutely no pollen in any hive containing a colony of bees that has passed the winter in such hive. All honey contains more or less floating pollen; combs in which pollen has been stored previously, contain many particles of the same, according to Prof. Cook; and if nothing else is available, bees will collect fine particles of wood, and use in place of farina from flowers, as I have frequently seen them doing from a pile of fine sawdust which was taken from the shop where I used my planer-saws. Elisha Gallup told in the *American Bee Journal*, years ago, how he hived a swarm of bees so late in the season that they built only three pieces of comb, about as large as the hand, and, as an experiment, he fed them honey all winter, and in early spring they commenced brood-rearing before being taken from the cellar, finally building up a fine colony and storing considerable surplus honey that season. I have had similar experiences, but find that the less pollen there is in the hive the less brood will be reared; and where there is scarcely any pollen, or, as most people would say, none at all, there would be but few cells of brood raised, and this brood be scrimped in food, and appear weak and sickly. Nothing incites brood-rearing like plenty of pollen in the hive, with the necessary honey; and with the advent of new pollen, brood-rearing commences in earnest. I have fed the bees meal and flour many years, thinking that it would take the place of pollen from the flowers; but after a careful watching I am satisfied that such is not the case, and I doubt its paying to feed bees in this way, aside from the fun there is in seeing the bees work on the flour, where pollen is to be had from the flowers in from 40 to 50 days previous to the honey-harvest.

ROYAL JELLY FOR QUEEN-CUPS.

Question.—In order to raise queens out of the swarming season, where do you obtain royal jelly to put into cell-cups?

Answer.—At any time when there is young brood or bees in the larval form in the combs, there is no trouble in obtaining royal jelly, or, at least, I never found any. All you have to do is to make a colony queenless having such larval bees; and in from three to five days after taking away the queen you will find cells enlarged and the occupant swimming in royal jelly, or at least to a sufficient extent so that enough can be obtained to start from 12 to 24 cups sufficiently for rearing that many queens. If you do not wish to make an extra colony queenless you can use Willie Atchley's plan of lifting the cocoon out of the cell containing the little larva you wish for a queen, and in this way the larva is already supplied with sufficient food to last till the bees put in the royal jelly to change it to a queen. I say you *can* do this. By so saying I mean if you are as successful as Willie is; but I will also say that, if you are, you can do better than I can. After several trials I have gone back to the jelly plan, as I fail in many instances in separating the cocoon from the cell without tearing it; and if I succeed in doing this the bees are not suited with my " botch " work in placing them in the cups, so they pull them out and roll them out at the entrance of the hive. I wonder how many have made a success of this plan aside from Willie Atchley. One reason for my not making a success of it is, I presume, that I am becoming a little shaky as I grow older, so that I can not do fine work as I once did, owing to the trembling of my hands.

QUEENS NEVER TAKE A CLEANSING FLIGHT.

Question.—Why is it that queens never take a cleansing flight? Of course, clipped queens can not. Can it be possible the bees take care of her?

Answer.—As nearly as I can find out, the queen is a privileged person, so to speak; that is, they drop their excrement when and where they please. Whether the bees clean this off the combs or not, I can not say, or whether the case is different with the queen inside of the hive than it is when they are caged, I do not know; but this I do know: I have repeatedly seen queens void their feces in queen-cages, while virgin queens kept in a queen-nursery do this often in handling the nursery-cages. My idea is, that, as there is only one queen in a hive, and the amount of waste matter thrown off is so little, it is not of enough importance to the existence of the colony so the queen should go out for a cleansing flight as do the drones and workers. If any one has different views on the matter from the above, I should be pleased to hear from him; as, if I am not much in error, this is a matter in bee-lore which has never been touched on before.

ENAMELED-CLOTH COVERING FOR BEES.

Question.—Is it a good plan to use enameled covering over the brood-frames in winter? If bees need water in summer, why do they not need it in winter also? and with the enameled cloth over the frames, they have water in winter as well as in summer.

Answer.—This is quite ingenious, to say the least; and if I really believed that bees needed water while in winter quarters I might be persuaded to try enameled cloth for that purpose, as it would be much easier supplying water in that way than by giving it them in a sponge at the entrance, as has been recommended so many times, where bees were in the cellar. But bees use water only when breeding rapidly; and as winter breeding is poor economy, and something I do not wish, I do not care to supply that which brings on what is a damage to me, for I believe winter breeding to be a damage to any bee-keeper residing at the North. I have tried enameled cloth several times over the cluster of bees during winter; and in every case where tried, those colonies did not come out nearly as strong as did those with absorbents over them; while many colonies, in proportion to those so tried, died or were so weak as to be nearly worthless. Some seem to like enameled cloth over the bees in winter; but with me the moisture arising from the bees condenses in drops on the cloth; and when these drops become so large that they fail to hold to the cloth they drop down on the bees, thus keeping them damp, and in a condition not suitable to their wintering in the most perfect order. Enameled cloth for bee-quilts would never have been thought of, in my opinion, were it not for its non-sticking character — that is, a sheet of enameled cloth will not be glued down by the bees so but that it readily cleaves from the top of the hive by a little lifting by one corner. This makes it desirable where a hive is to be opened often, as in the case of queen-rearing or an experimental hive.

Heads of Grain, From Different Fields.

HONEY FROM THE NEW OPIUM-PLANT.

Mr. Root:—From a recent number of the Oil City (Pa.) *Derrick* I take the following:

> The increased cultivation of the poppy in various parts of Europe has, it is said, led to a marked growth in the percentage of opium contained in honey, the properties of which are much influenced by the flowers from which the bees gather it.

Now, what I should like to ask is: Do bees work on the poppy? or is the above simply a newspaper "yarn"? If the bees do work on the poppy, would the honey therefrom contain enough opium so that a person would notice the effects of it, after eating the honey?

Corry, Pa., Mar. 1. L. B. GILMORE.

[Will some of our foreign readers please give us the desired information?—ED.]

TOP-BAR 1⅛ INCHES WIDE.

One season's use of ten Tinker hives with top-bars 1⅛ wide, ⅜ thick, has satisfied me that I don't want any more narrow top-bars in my apiary, as well as honey-boards (the latter I have never used). Judging from one season's use, I don't think the queen will lay as well in these shallow hives. What a pleasure to lift the honey from above these wide top-bars! no brace or burr combs to any extent, and in many none at all.

PASTE FOR LABELS.

I use ordinary flour paste, *boiled thick*, and have no trouble, providing the labels are not put on when the pails are cold enough to chill the paste. O. H. HYATT.

Shenandoah, Ia.

THOSE GIVEN PRESSES.

When you get to making those Given presses, here's an order awaiting you. Quote me your figures at the earliest day. I have used in my own yards something over 500 lbs. of foundation of different makes during the last three years, and I know something of what I need. Dadant's is excellent, but the press is just a trifle the best, in my opinion. When you get to making presses, be sure to get cells right side up for strength. I have had foundation that was wrong side up. There's a right and wrong way, though no doubt you know this.

Glenwood, Fla., Feb. 12. A. F. BROWN.

[The Given-press problem is a more difficult one than we at first supposed. We are not satisfied with the old dies—they are too crude to make a really nice article of foundation—one that is pleasing to the eye. We have made an extra set of new dies, but with no better effects. Thus far our experiments show that, so far as *appearance* is concerned, the *roller* foundation is far superior. The Given sheets look clumsy, and do not give that nice clear transparent effect that can be obtained from the rolls.—ED.]

THE USE OF VASELINE IN APICULTURE.

Who has not been annoyed by the bees sticking frames together? Who has not been greeted with a hailstorm of stings when, on taking a frame from the hive with increasing vigor, it suddenly breaks loose with a snap? It is fortunate for every bee-keeper who uses movable frames that do not have to be cut to a thirty-second of an inch, and which do not have to be absolutely perfect. Well, Dr. Dubini has discovered a means whereby the propolizing of bars and frames, if not entirely done away with, is so greatly reduced that frames can be put in and taken out in such a way as to spare the bees themselves much annoyance, and also their owners from being stung. This remedy is yellow vaseline, which is applied to the grooves and bars, and different points of contact, with a small brush. It is an extremely cheap substance, and therefore within the reach of all. Dr. Dubini uses it in his hives for the purpose of preventing the top-bars from being fastened to the under side of the cover. Vaseline works to the best advantage when applied to metal strips, or tin rabbets or frame-ends, which especially, when well cleaned, and smeared with vaseline, admit of easy insertion or removal.

Medina, O., Mar. 29. KARL R. MATHEY.

[We have several times referred to the use of vaseline or grease as a preventive, to a large extent, of the deposition of propolis. We are sorry we can not speak from experience; but several have within the past few years spoken highly of it. Whether Dr. Dubini is the original discoverer of its use is doubtful.—ED.]

A CASE OF FOUL BROOD IN FRANCE.

M. Sevalle, editor of the French bee-journal *L'Apiculteur*, reports an interesting case of the cure of foul brood. The afflicted colony was found to be queenless, although still having sealed brood in four of its ten frames, the brood being completely diseased. May 2 the combs were taken out, the brood entirely cut out, and the combs replaced. The amount of bees was about 1¼ lbs. Napthaline was placed on the floor and on the frames. Two weeks later the population was sensibly diminished;

a piece of drone comb 2 by 4 inches had been built in the vacancy, and eggs and brood of laying workers were present. A nucleus of less than a pound of bees, having a good queen, had been received three days previously from Italy, and was added to the colony under treatment, the queen being caged. The queen was freed two days later, and the naphthaline continued. The colony prospered, with no trace of foul brood, and October 18 it was one of the best colonies in the apiary. C. C. MILLER.

Marengo, Ill.

MAKING SUGAR SYRUP BY THE COLD-WATER PROCESS.

Dr. J. T. Beall, March 15, page 226, hits the nail squarely on the head when he tells how to make syrup that will not sour or granulate. My plan is exactly on the same principle, but I do it in a little different way. I have had over 20 years' experience as a druggist, and had a good deal of trouble at first in making syrups for the various uses of the store in summer time, when we used large quantities for the soda-fountain. By the hot-water process we could not always get a uniform quality. If too thick it would crystallize; and if too thin, if not used soon, it would sour. Many years ago we commenced the cold-water process, and ever since we can make a uniform quality that will keep, I don't know now long—probably indefinitely, without souring or crystallizing. Our plan is to take a 10-gallon keg (a barrel could be used if necessary in the same way), knock out the head, and with it make a false bottom that will fit inside of the keg, boring the false bottom full of small auger-holes, putting in pegs to hold it up about 6 inches from the bottom of the keg; then take white flannel, about three or four thickness, and put it over the false bottom, stuffing it in around the edges so it all has to percolate; then we dump in granulated sugar, about half full, then pour in cold water and let it percolate in the cellar or some room, and no kitchen or stove mussed up. The first run we draw off from the faucet below and dump back; after that the syrup is fit for the queen's taste, or the bees' either. All you have to do afterward is to draw off the syrup and add more sugar and water. We have always fed our bees with this, when they needed winter feeding; with a barrel a large quantity could be made in a short time. M. F. TATMAN.

Rossville, Kan., Mar. 17.

[It begins to look now as if the cold-water process was feasible and practicable for the bee-keeper. We shall certainly try it in the course of the season.—ED.]

HARPER'S MAGAZINE ON BEES AS FERTILIZERS; SWEET CLOVER FOR STOCK.

I take the liberty of calling your attention to an illustrated article by W. Hamilton Gibson, the naturalist, in the current number for March, 1894, of *Harper's Magazine*, on "Welcomes of the Flowers," which is very pertinent to your side of the discussion on bees and blossoms. Please read it.

I can also indorse, from personal observation, what your contributor, Mr. Boardman, says of sweet clover. It is all a popular mistake that stock will not eat it, and I believe that, where alfalfa will not succeed, sweet clover is a valuable addition to farm crops. Stock have also to learn to eat alfalfa before they will take to it readily. I raised a patch about 15 years ago, and turned the family horse on it. He did not touch it, but ate the grass and weeds; but in the fall, when light frosts killed the grass and weeds, he grazed the alfalfa; and ever after, if he was put on that patch, he took the alfalfa first. It is also true that alsike clover will do well on sod. I have a good catch of alsike on Wild Creek bottom land, sown the last of August.

A SUGGESTION.

In behalf of the beginners and amateurs in bee-keeping I respectfully make this suggestion: That you have a series of articles on manipulating bees and hives, copiously *illustrated* with reproductions from photos of an expert apiarist in the act of making such actual manipulations. As to a novice, a little of the *show how* is worth a great deal of the *tell how* to do such things, the illustrations to be accompanied with brief and clear printed directions. This, I believe, would make a new departure in bee-journalism that would help to give GLEANINGS a boom among beginners and persons interested in bees, and you have the apparatus at hand—bees, hives, Kodak, and apiarist. Perhaps, as the Dovetailed hive is in pretty general use, it would be a good idea to employ it in these object-lessons. WM. DALTON.

St. George, Kansas, Mar. 21.

[Thanks for the suggestion on the "show how." We will try to carry it into effect this summer. We shall be glad to refer to the article in Harper's.—ED.]

DISGUSTED WITH YELLOW BEES.

I am disgusted with yellow bees; no good for comb honey. I have tried the five-banded, and would not take more of them as a gift. I intend to get rid of what I have. I purchased from the best breeders. I could give names if required. Hurrah for the dark Italians for honey—that's money. WILL ELLIS.

St. Davids, Ont., Mar. 14.

Can you tell me some way to destroy the little short-tailed mice? They are so small that they can squeeze into the entrance of the hives, and are making themselves very troublesome.

Carpenter, Ill. EDW. E. SMITH.

[Use "Rough on Rats." Put inside of boxes perforated with holes large enough to admit the varmints. This arrangement will keep the poison away from domestic animals, and yet let the mice feast until they die.—ED.]

GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year.

Above all, take the shield of faith, wherewith ye shall be able to quench all the fiery darts of the wicked.—EPH 6. 16.

REPORTS show that bees are wintering and springing finely all over the country.

"OBSERVER," in the *Progressive Bee-keeper*, hints that "GLEANINGS and the *Progressive* have formed a mutual-admiration society." Didn't know it before—at all events, the *Progressive* has grown so fast and so well that we couldn't help but notice it.

WE are having moderate April weather. At the present rate the bees will get through the month in good shape. So far as we know, we have not yet at this date (April 7) lost a single colony, and they are all outdoors, just as is shown in our last issue, page 270.

REFERRING to Mr. Doolittle's article in another column, we should like to know whether any one else has succeeded in removing the royal jelly and the larva, on the plan proposed by Willie Atchley some time ago, and transferring it to the queen-cell cups.

WITH this issue we again give you 52 pages. In fact, we have been running 8 pages extra ever since the season opened. We are obliged to make this enlargement temporarily in order to make room for some of the very acceptable matter now on hand, which, if held over very much longer, will be out of date. By the way, our contributors must not be disappointed if they do not see their communications in the "next issue" after writing them. We very often hold over manuscripts until they are more seasonable.

"BEE-BOOKS BY THE CARLOAD."

THIS is a kind notice that Bro. York has in the last *American Bee Journal:*

> The A B C of Bee Culture is a grand good book. In GLEANINGS we just notice that Bro. Root is getting out the 62d thousand of this well-known work. That means a big pile of books. Let's see; we believe each copy weighs two pounds, so that would make just 62 tons in all—several carloads of just one bee-book! But that's just like Bro. Root—always doing big things.

Friend York is quite correct in his calculations, but we had never thought of it in just that way before. Considering the tons and tons of catalogs, and other bee and agricultural books, to say nothing of every issue of our journal, 62 tons would represent but a very small part of the matter that actually leaves our press. It has to run 14 or 15 hours a day, and it is a large Cambbell book-press too, printing 16 pages like this at every impresion. By the way, we are glad to notice that G. W. York is to be publisher of the new "Bee-keeper's Guide," written by Prof. Cook, and the price is to be raised to $1.25 instead of $1.00, as heretofore. The book is well worth the money.

GLUCOSE-FACTORIES AND DISTILLERIES.

WE have just had a very pleasant call from J. B. Hains, of Bedford, O. He is one of the most extensive bee-keepers of the State; and when he makes his annual visit here we are quite sure to discuss some of the latest developments. Of course, our conversation naturally turned to the subject of glucose. Said we, "Do you know of any legitimate use for the stuff?" He looked doubtful for a moment, and said, "Yes, I do. It is good for sticking labels to tin or glass, and that is all it is good for." We expressed the hope, which he heartily indorsed, that every glucose-factory, every distillery, and every other stomach-destroyer, might some day be excluded from the land, by a cast-iron law that would *exclude*. If some of our legislators are influenced for their *stomachs'* sake, and the sake of some of their constituents' stomachs, to vote in such a way that distilleries can continue their nefarious business, we can not imagine how those aforesaid stomachs could influence legislators to vote for the maintenance of glucose-factories. There are so many who bow the knee to King Alcohol that it is a hard matter just yet to whip out the liquor-business; but while there are few people, comparatively, who mix glucose with foods, those few make such a large use of it that the problem is a most serious one.

SWEET CLOVER AND ALFALFA.

It may be well to have it understood that sweet-clover seed and alfalfa seed look exactly alike. I do not believe that expert seedsmen can tell, even with the aid of a magnifying-glass, one from the other; and this fact has given rise to some troubles already, and at least one expensive lawsuit. The seedsman sent a farmer sweet clover when he ordered alfalfa. We have not had any lawsuit, but we have had one expensive blunder in that direction. And this has taught me a way of distinguishing one from the other. Sweet-clover seed (sometimes also called Bokhara) has a distinctive strong odor like that of sweet-clover blossoms or the green plant. After you have once got the smell of it you will never forget it. Well, even a little pinch of the seed has this distinctive sweet-clover smell. One of the ironclad rules of our seed-room and whole seed department is, that every bag must be labeled on the outside, and at least one label also be put down among the seed. If one label gets torn off or lost, the other can pretty surely be found. If everybody who handles seed would take similar precautions it might save much trouble. Sowing seed on several acres of ground, and then giving it care and cultivation, only to find out, just before maturity, that it is something you did not want, and have no use for, is rather serious business. A. I. R.

THE PROFITS OF PUBLISHING A BEE-JOURNAL.

THERE is a certain fascination about starting a new bee-paper; and very few of those who embark in the doubtful enterprise first count the cost. Bro. Sage, of the new bee-journal entitled *Success in Bee Culture*, gives his readers the benefit of this very facetious bit of information:

> For the benefit of those young men who took Horace Greeley's advice to "go west," and now feel "divinely called" to start a bee-paper, we append the following table, which shows one month's business at *Success'* office, ending Jan. 1st. This is not figured down exactly to a cent, but is nearer the truth than one might think at first reading.

EXPENSE OF DEC. 1ST ISSUE.

Composition	$18 75
Cover paper	2 64
White paper	7 50
Stitching and trimming	2 50
Postage on paper	1 00
Writers	4 50
Letter postage	3 00
Editor's time on making up the forms, and presswork (40 hours)	00
Editor's time in writing editorials, and in correspondence explaining why the the paper is late (100 hours)	00
Editor's time reading bee literature, and thinking how to make his paper pay (400 hours)	00
Total	$39 89

RECEIPTS.

3 subscriptions, three months each	$ 45
100 postals asking for samples	00
50 letters wishing us success (thank you)	00
5 letters asking us why paper is late.	00
1 letter informing us that our paper abounds in mistakes	00
1 letter saying they would rather have the blank paper before it is printed	00
5 letters offering to write bee-lore for $4.00 per column	00
2 letters offering to sell a bee-paper	00
1 letter offering to sell us a barrel of monkeys to keep the millers away from our bee-hives	00
3 letters offering to write in exchange for advertising	00
Total	$ 45

GALVANIZED TANKS FOR HONEY; ARE THEY UNFIT FOR SUCH USE?

THE following is a card just received from Chas. F. Muth & Son, and will explain itself:

> *Friend Root:*—Tell us whether, in your experience, you have found galvanized-iron tanks to be unfit for receptacles of honey. The knowledge of the fact seems to be of importance to one or more of our friends. CHAS. F. MUTH & SON.
>
> Cincinnati, Ohio, April 4.

For years we have advised against the use of galvanized iron for any purpose where honey would come in contact with it; but more recently our opinion has peen undergoing a change as the result of some recent developments. Several years ago a Toledo firm made their extractors of galvanized iron, and they insisted that it in no way affected the honey. But very recently the large California honey-producers have particularly specified in their orders, that their extractors be made of galvanized metal—first, because it was stronger; and, second, because it would not rust. We have observed, too, that these Californians, who produce their honey by the carload, often store it in large galvanized-iron tanks; and later in the season, when they have more time, they draw it off into square cans, to be shipped. Yes, indeed, they use these large tanks above ground, not only for holding honey, but for holding the water-supply.

Some years ago, when the writer was studying chemistry at Oberlin, the question was raised in class in regard to the various kinds of water-pipes. The professor said that iron pipes were objectionable because they were liable to rust. For this reason he preferred galvanized pipes. "But," said one member of the class, "is not galvanized iron poisonous?" He answered by saying that, where water stood in a galvanized vessel for some length of time, it might appropriate enough of the poison to distress the stomach slightly; but from the galvanized water-pipes there was no danger because the water is drawn off so frequently, as a general rule.

A year or so ago one of our horses died of a peculiar sickness, and we at the time attributed it to the fact that he drank water that had passed through 200 or 300 feet of galvanized pipe. The water was allowed to stand in the pipe for 24 hours, and then a small quantity was drawn off and sent to our State Chemist. The analysis showed that there was not enough of the poisonous element to be in the least harmful to man or beast.

In a recent bulletin from the Department of Agriculture, the relative merits of lead, iron, and galvanized metal were discussed from the chemist's standpoint; and the report at the time, if we remember correctly, was to the effect that *lead* pipes would in a short time give off enough poison to the water to render it a little harmful; and that fruit canned in lead or terne-plate cans was often poisonous, but galvanized pipes were, as a general rule, regarded safe.

Now, then, for the use of extractors we can not believe the galvanized metal can do any harm to the honey, because it does not remain long enough in the can; but when a small quantity of honey is *stored* in a galvanized tank a good while, it may appropriate enough of the zinc to be harmful.

This is an important question, however, upon which we should like more light from those who are in a position to advise—especially from bee-keepers who make use of a large quantity of galvanized iron. In fact, we should like to have sent us a sample of honey that has been kept in a galvanized tank for a year or so. We would then have it submitted to a competent chemist to determine whether there are any poisonous properties, as the result of this storage, in the honey. In conclusion, we would say it is a good idea, if in doubt, to be on the safe side until we get "more light."

MR. HEDDON AND THE GLUCOSE QUESTION, ONCE MORE.

As intimated in our last issue, we expected to give Mr. Heddon a chance to reply to our footnote on p. 278; but his reply, just at hand, takes five columns to our two. As it is out of the question for us to allow him so much space we will endeavor to give the main points of his article as *fairly* and briefly as possible.

Mr. Heddon sends an affidavit from his son Charles, to the effect that he (Charles) personally took from the hives the Willard honey, and shipped it himself; and that, to his certain knowledge, all of said honey was free from adulteration. This is good so far as it goes; but, if we are correct, Mr. Willard asked Mr. Heddon *himself* to furnish an affidavit that said honey was pure, but Mr. Heddon ignored the request—or, at least, Mr. Willard received no response. In answer to our inquiry regardng the honey shipped by Mr. Heddon in 1893, he says he never shipped any adulterated honey to any one.

Referring to the two cans of honey we have n our possession, he admits the genuineness of the tags, and that he has been in the habit of attaching them in that way; but, assuming that the tags, cans, and box, are his, he denies that the honey is adulterated; or, if adulterated, that it ever came from him. He says he sends us a sample of pure honey, and asks us to compare it with this in the cans. Of course, we expected that the sample would taste all right; and it is greatly superior to that in the cans.

As to the cheap honey, he refers to S. T. Fish & Co. as advertising honey from 4¾ to 6 cts. per lb., depending upon style of package and quality. In a letter just received from S. T. Fish & Co. they say that this 4¾-cent honey is in barrels, and Southern stock at that, while the 6-cent honey is the finest product. Some time ago they wrote us that the honey market was very poor; and that, owing to the very hard times, they could not begin to realize anywhere near their old prices, and they were afraid they would have to make low offerings to dispose of what they had. But Mr. Heddon has been offering cheap honey for years back, and it was not Southern stock either; nor were the times hard as now.

He refers to the test made by Prof. Cook on the chemists, where 50 samples were placed before them, some adulterated and some not, with glucose, and which the chemists recognized correctly in every case, as not being conclusive to him. He affirms that the test should be made by persons who should "lay aside all desires as to results." That is just exactly what *was* done. If they had any desire to show that the honey *was* adulterated, why did they not show those samples that were pure, as also adulterated? But, no; they correctly picked out the pure from the "doctored" samples. There was not and could not be the least prejudice in this instance.

Further, we call our readers to witness that Mr. Heddon said, on page 277, that nineteen-twentieths of his customers praised the honey he shipped them, and that he (Heddon) *offered* to show us the "original manuscript" to prove it if we would publish it. In the closing paragraph of our footnote, we called attention to these testimonials as being merely *printed* and *numbered*, with neither date nor name; and as Mr. Heddon had *offered* to furnish the original letters, proving all these testimonials to be genuine, we told him that we would publish them or acknowledge their genuineness. Now, did he do it? We have read his 11-page article, now in hand, over carefully, but do not see any reference to it; and as to the "original manuscript" that he was to furnish, it has not yet made its appearance. Perhaps he overlooked it.

The rest of the article is concerned largely in defense of his statements made at the Michigan State Convention; and as he has nothing new to offer we do not refer to it except to mention that he says he did not defend the practice of mixing glucose. The paper was published in the *American Bee Journal*, and it speaks for itself.

Finally, we must say that we have no more room for further discussion of this matter. We certainly do not wish to do Mr. Heddon an injustice; we are seeking the truth and the best good of the pursuit. It seems to us he has had enough space already; and unless there should be some very good reason we should prefer to devote our space to other matters.

EVOLUTION BY HUMAN INTELLIGENCE.

I BELIEVE in the above kind of evolution; and one of the most interesting wonders this world affords to me is to look on and see what human intelligence and the brains of thinking men are continually evolving. Just one illustration. Something over 25 years ago it was my privilege to ride one of the first velocipedes. There was then a sort of excitement and craze for a time, and then it seemed to settle back and be lost to the world—at least, to a certain extent. There were some, however, who held on and kept experimenting with the curious machine. Some laughed at them for their pains, and I do not know but I was among the number. Finally the pneumatic safety made quite a stir in the world about three years ago. You all know that the first Columbia safety was to me not only a wonder but a glimpse of something I had not dreamed of. But the '94 wheel was such an improvement again that I was pleasantly astonished and surprised when the boys talked about having me try the results of the experiments and work of the best mechanics and the best intelligence of the world during 1893. I was a good deal incredulous about finding any thing I should like better than my '93 Columbia. But they sent for a Victor wheel and asked me to try it. Again I am surprised and astonished. The special point of the new wheel is its lightness. When I picked it up with one hand and carried it about easily, I could hardly think there was enough to it to enable me to do what I had done on my old wheel. But human intelligence is climbing up, and it is climbing fast too. The new wheel does every thing the old one did. It is a good many pounds lighter, and it is certainly easier running. It turns sharp corners, and enables me to dodge here and there, avoiding foot-passengers with an ease and security I did not believe possible only a few months ago. Is it really possible that, through the inventive genius of our bright mechanics, a middle-aged man like myself can dodge around, and skip and run, with the ease and rapidity and secure footing of a child? I suppose that, to be consistent, I should expect the year 1894 to witness still more progress and achieve still greater wonders. Well, I am trying to scrape up faith; but meanwhile I am quite well satisfied with my little 1894 Victor Flyer. A. I. R.

DEATH OF C. N. ABBOTT, FOUNDER OF THE BRITISH BEE JOURNAL.

After GLEANINGS was in its third year I discovered there was a bee-journal published in England. GLEANINGS was started in Dec., 1872, while the first issue of the *British Bee Journal* came out in 1873. Mr. Abbott was born Oct. 5, 1830, and myself Dec. 9, 1839, so there was a difference of nearly ten years in our ages. Some of our older readers will remember my metal-cornered frames, which came out in 1872. The first notice I had of the *British Bee Journal* was a description of my metal corners, accompanied by some very fine wood engravings—one of the blank of which the corner was made, and another already folded up. These illustrations were so much better than the average wood-cuts in our own country that I was very much astonished; and I soon learned that whatever friend Abbott undertook had to be done in the very best manner possible. His whole journal was a model in the way of typography, engravings, and scholarship. In fact, the only objection to it (if it can be called an objection) was the editor's impatience with people who persist in half doing a thing, and especially with what some of our British cousins have been pleased to call "Yankee slipshod ways." Friend Abbott and I soon became acquainted, and an exchange of journals was proposed. He sent me a bundle of his journals, and I sent him a bundle of ours in return, and then we each remailed them to subscribers. Friend Abbott's journals came to hand wrapped with exceeding niceness and security. Our own, however, did not fare so well. The bundle burst open, and the journals were crumpled up all through the mail-bags. At this our friend's characteristic impatience cropped out, and he gave me a short lecture on sending things carefully by mail. I remember the ending was something like this: "All this bother has resulted just from the lack of a bit of string." The demand was so great for early numbers of the *British Bee Journal* that we never succeeded in getting a complete file. Our bound volumes date back only to Jan., 1875.

It was not long before we had a visitor from "Merrie England," and I told him of friend Abbott's letter. He said friend A. was one of the best of men; but, as with many of us, people must become acquainted with him to understand him thoroughly; and he said Mr. A.'s best friends had learned to make allowances for his impatient outbursts whenever he came across any piece of shiftless work; and, oh dear me! we do not have to travel very far in America, nor England either, to find half-hearted people.

Friend Abbott was a practical man. High-sounding theory, without practical knowledge, would never pass with him, nor did it ever find a place in his journal; and sham and deceit of any sort were always obnoxious to him.

Some years ago we greatly enjoyed a visit from his son, Mr. James A. Abbott. While he inherited some of the special traits of his father, going about in the world as he had done had somehow taken off the sharp corners. I remember that, at a bee-keepers' convention in Albany, one of the bee-brethren got off his track into political and financial matters; and just as friend Abbott came in and sat down beside me, this Yankee brother undertook to tell us something about the finances of the Bank of England. Young Abbott very soon gave him to understand, and the rest of the convention, that a son of old England was in their midst, and did not mean to remain unknown either.

Peace to the memory of C. N. Abbott; and may we learn to copy his virtues, and overlook his failings, if such they really were. A. I. R.

BOOK AGENTS.

A young man called at our home early in the evening. He said he wished to see me particularly, but declined telling what he wanted. Mrs. Root told him he would find me over at the factory; but he said he wished to see me at home, and would call at half-past seven. I was tired, after the duties of a busy day, for this remarkably fine weather in March has crowded business on to us of all kinds, almost all at once, and I did not really want to see anybody that evening. I wanted to look over the agricultural papers. The family were all away somewhere; and when the young man called I was alone. As he did not seem inclined to make known his business, I offered him a chair. He said he came from London, and had not been long in our country. Then he spoke of our people and of our State. He talked about the weather and about finances, and finally he commenced about spiritual things. I did not say very much in reply, because I did not care to prolong his visit. And, by the way, it is a very great task to me to sit and waste time in commonplace observations. Some people seem to delight in studying up something to talk about, and talk and talk without any point to their remarks, and waste precious moments in rambling all over the universe. It is all very well if people have no business on hand, and nothing else to do. But it is really surprising to me, many times, to see people waste precious moments in idle talk. I try to be courteous to everybody; in fact, I sometimes make observations about the weather in order to be sociable; and I certainly expect to be civil to people who come into my own home—that is, within the bounds of reason. I became so weary, however, of this rambling talk that I asked my guest, as pleasantly as I could, if I might inquire why he so particularly desired to see me. At this he smilingly reached into an inside pocket and drew forth a book. I had been mentally questioning whether he might not after all be only a book agent. He commenced to talk, but I interrupted him.

"Excuse me, sir; but it is true, is it, that you are a book agent?"

He dodged the question a little, but I forced him to admit that he was.

"And then why did you not inform me, when you first came in, what your business was?"

He did not reply to this, but commenced again an eloquent discourse, or at least I presume he considered it so, in regard to his book. He insisted on holding it open before me.

"Please excuse me, sir, but I do not wish to buy a book of any kind. I very much prefer to examine the books and papers I have here on my desk, that I have as yet hardly had time to look at."

However, he was not to be bluffed off in that way, and I began to think that, may be, I was not master, after all, even in my own home, and I finally rose up and said:

"Please excuse me, sir; but I have been greatly annoyed by the importunities of book agents, and sometimes I am accused of being very harsh to them. If you will put your book back into your pocket, and believe me when I tell you that I do not want it, and prefer not to take the time to even *look* at it, we can, perhaps, finish our business pleasantly."

I do not know whether it was cheek or whether it was ignorance that prompted the young man still to insist that I should look at his book and listen to his tirade; but I decided that forbearance had ceased to be a virtue. I opened the door and motioned with my hand for him to go out, and wished him a good-evening as pleasantly as I could under the circumstances. I think it was about at this point that he commenced again:

"My dear sir, if you will just let me put the name of A. I. Root at the head of my list, you don't know how many books I can sell, simply because of your high standing and reputation."

This came pretty near being the "last straw." I remember of thinking that, perhaps, I should really be obliged to put him outdoors by main strength, and I remember of thinking how much I should relish such an undertaking. He finally went out, and I closed the door after him just about as soon as it could be safely shut. Then I went and sat down, thinking I had finally got through with him. A timid knock at the door, however, admonished me that he was not gone, after all. At the same time I began to feel a little sorry to think that I had been so severe. I did not mean to let him get in again, however, but I opened it enough so he could speak.

"Mr. Root, I really beg your pardon for having vexed you. Will you not forgive me?"

I replied, "Yes, my friend, I will most cheerfully forgive you on one condition."

"And what is that?"

"That you will, from this time forward, tell the good people wherever you may call, *at the very outset*, that you are a book agent."

He did not give me the promise, and here rests the whole point of my story. Everybody else that I know of—that is, people in every other occupation—when they call upon a business man (or business woman, for that matter) are not ashamed to tell what their business is. I have known patient, hard-working Christian women, who have again and again been obliged to stop their work in the middle of a busy day —yes, their ironing and their baking, perhaps with a baby crying, to listen to the disagreeable lingo of some book agent. And I have heard people excuse themselves for buying a book they did not *want*, because they said they could not see any way in the world to get *rid* of the fellow without buying his book. I do not particularly object to book agents, if they would come out fair and square, and tell their business. They have learned of late, it would seem, that carrying a book in their hands, or even in a valise, "gives them away," to use a slang phrase, and so they have arranged to have a capacious pocket made on purpose that they may get into your home or office in such a way that you really can not decide it is not an old acquaintance or some distant relative that has just turned up. Shame on any occupation that requires one to sail under false colors. Let us have oleomargarine, and things of that sort, *labeled* with their real name. Let us have glucose labeled as glucose; and let us have a law passed (if nothing else will do) requiring book agents to put up a sign or wear some sort of badge, making it known in good-sized letters to the world around, something like this:

"*I am a book agent.*"

OURSELVES AND OUR NEIGHBORS

BY A. I. ROOT.

> Whosoever therefore shall break one of these least commandments, and shall teach men so, he shall be called the least in the kingdom of heaven; but whosoever shall do and teach the same shall be called great in the kingdom of heaven.—MATT. 5: 19.

Some time toward the last of February I was telling my friends, perhaps a little boastfully, that I had not had a cold this winter. I further added that I had not worn any chest-protector at all, such as I have been obliged to use winters for many years; neither had I slept with a "nightcap" on, as I have been obliged to do in *winter* for years back, and oftentimes even in the *summer*. Somebody remarked that I had better be careful about boasting, for I might have to go back to all these things before spring would be fully opened. And so it happened. I caught cold and had a sore throat. When I got over that it settled on my lungs; then it got up between my shoulders; and if I got the least bit chilly I would have pleurisy. I suppose you all know something about these things, and so I need not go into details. And, by the way, please do not recommend any medicines for this sort of thing. Could I have gotten out into the open air and ridden my wheel forty or fifty miles it would have answered the purpose. to my notion, far better than any sort of medicine. You see I am still strong in my notions of "doctoring without medicine." Well, this morning, when I first arose I remarked that my boots needed to have their soles repaired again. They keep wearing out toward the toes—especially the right boot—and my shoemaker has built over the right toe of this boot so much that of late he has been putting in great nails in order to get something that would not be worn clear up to the uppers every six or eight weeks. As I said, I recollected my every-day boots would have to be mended, and I should have to put on my Sunday ones; then I considered further that a corn on my right foot needed paring; but as it was Saturday morning I thought I would make it do until I took my accustomed bath Saturday night. Sure enough, the new boot did press unpleasantly on that sore corn. However, I went over to the factory, whisked up the elevator, and placed a letter where it would not be neglected; then down again to the basement, through the greenhouse, and into the potato-cellar, which I discovered was 47 degrees; and although it was freezing a little outside, the man in charge had not left the windows open during the night. I got them all wide open, and reduced the temperature 10 degrees in a very little time. Then I looked after various other things, and gave directions in regard to the work; but as I started for breakfast I could not help limping, for that new boot was making my corn feel very sore. The soreness was streaking up my leg, and the pleurisy from my shoulder was streaking down to meet the other. It made me think of the northern lights with their streamers, on the night before—Friday, March 30. By the way, what a magnificent celestial display of "search-lights" we did have as they met together in the zenith! I did not see the colors, but Mrs. Root and the children described them to me, for I am color-blind to a certain extent. Well, the "streamers" from the pleurisy from my shoulder, and the corn near my small toe, were not nearly as inspiring as the aurora. In fact, before I got home I was conscious of being not only crippled in body, but I felt crippled mentally, and, I am afraid, a little bit spiritually also. Dear me! what a wonderfu truth that "kid" did utter when he said, in speaking his piece,

"Tall *aches* from little toe corns grow"!

I opened the bedroom door to go through to the clothes-press, to get a sharp knife that I knew was in a pocket of my Sunday clothes. It is one of the queen-cell knives, and it is very sharp. First, the door stuck and would not open, and that vexed me. Then Mrs. Root had hoisted every window as far as it would go, and the wind was just rollicking through the bedroom, and the bed-clothes were piled over the chairs and the bedstead. They were getting ventilated and purified to an extent that ought to have satisfied any thrifty housewife. But I had got my overcoat off, and the ventilation did not help my pleurisy a bit. I remember o thinking that she carried this matter of ventilation of bedrooms to a very unwarrantable extreme. Fifteen minutes with such a wind, i seemed to me, ought to do the business; bu she likes to keep it up pretty much all the forenoon. I thought of making some gentle remonstrance; but then I remembered my sermon in the last issue, on domineering; and I drew a long sigh to think that even the pleasure o scolding could not be indulged in, as I had so thoroughly put up the bars behind me in tha talk. Yes, the bars were good high ones, and there must have been pretty nearly a ten-rai fence around the rest of the lot. The corn and pleurisy together seemed to utter a groan to think what a straight and narrow path it is—yes, not only straight and narrow, but there i a ten-rail fence (you know) on each side of thi path—that a consistent Christian must walk in Now, hold on, friends. Let none of you think am complaining of the restrictions to one' liberty that Christianity imposes. I hope I am sensible enough to rejoice and not chafe—yes to rejoice in the liberty that Christ Jesus give to his followers. Well, that door stuck again I remembered of promising my wife, more than a month before, that I would stop its sticking just as soon as I got up in the morning, and i had not been done. I knew perfectly well wha made it stick. There is a pair of doors between the sitting-room and our bedroom. They ar heavy walnut. One of them is bolted to th ceiling overhead and to the floor below. On account of the shrinking of the door, the bottom bolt did not enter the iron plate in the floor. Notwithstanding the pleurisy and corn and the neuralgic streamers, I decided tha *that* door should be fixed *then* and *there*.

One of my daughters, at this crisis, informed me that the omelet was just ready for breakfast, and would fall and be spoiled unless would come to breakfast at once. She has lately taken to *cooking* as one of the fine arts, instead of playing the violin. There were severa reasons why I wanted to accommodate her. felt vexed at that door; but I felt more vexed at that importunate corn. Well, I got through it all. Huber brought me Mrs. Root's nice little hammer, and about three blows settled the iron plate so the bolt would go into its place Then the door opened and shut easily and smoothly. With the sharp knife I pared the corn down until the white kernel was cut out entirely. Then my Sunday boot was comfortable and pleasant. The omelet was not spoiled by *considerable;* and when it came time for our usual Bible-reading and prayer, I was in a very thankful frame of mind.

Well, what has all this got to do with our text and my sermon? Please do not be in a hurry, and we shall get at the point. I have not yet got quite through with this matter of corns, however, and may be we shall find a sermon right there. Some of you may say that paring corns with a nice sharp knife is a very poor way of fixing matters. Well, I should be glad of instruction. I have tried corn doctors; but I should need one about once a month; and with a good knife I can work faster than they do, and *cheaper*. How about corn remedies? Well, I have not tried all of them; but Mrs. Root has tried all, or pretty *nearly* all, I was going to say. There is one remedy that suits my notions better than either a knife or medicine. It is right in a line of doctoring without medicine—going barefoot. This, I know by experience, is a perfect and complete remedy; and wading in the creek—in warm weather, of course—15 minutes a day, I believe, would answer; or go out some warm night when there is a heavy dew, and promenade up and down the lawn. This plan answers nicely. You need not tell me my boots were too tight or bad-fitting. They were made to order, and I have tried every variation, almost, to get them so as to make the least trouble. A boot that is too loose is not an easy one. When it is real warm I wear cloth shoes. These are next thing to going barefoot. I should be glad of help in this matter, but I do not believe I want any more corn medicines.

Now, then, even from a *Christian* standpoint of view you can not afford to be tormented by corns. You can not afford to have your strength, energy, vitality, and endurance, sapped out of your whole system by one little insignificant corn. One of the ladies' journals has had something to say in reference to this matter. A woman may wear herself out more in half a day than she would ordinarily in months, by being dragged down by a troublesome corn. Most of you have had experience more or less in this line. Again: If there is another weak point in the system, the pain and irritation from the corn will run over to that weak point and aggravate it all along the way. So much for the physical corns. How is it with the spiritual? Very likely one can, if he takes great care and pains, avoid having corns—or, at least, he can avoid being very much troubled with them; and in the same way he can and should beware of letting spiritual corns grow, increase, and drag him down. Suppose there is some cider in your cellar, that was purchased to make into vinegar. Some time you happen to be down there alone, and you are tempted to take a drink. You are a professor of religion, and a temperance man too. You know it is *wrong*. You would not have *your boy* do the same thing for the world. Away back years ago, when you were a child, a good many good people used to drink cider. But ours is a progressive age. Intelligent Christians are expected now to shun temptation. Perhaps you are alone in the house. May be it is after dark. There is not a soul anywhere near. You feel an especial hankering for the cider, and Satan says, "No one will know it, anyhow. Besides, it is your own business and not theirs." Very likely he adds that, in the present state of your health, it will do you good and not harm. You yield to the temptation. My friend, in such a case you are afflicted with a spiritual corn. You won't be just the same as you were before until you have *honestly repented* and asked God to forgive you. If you do not do this, this spiritual corn will act like the others I have been telling you about. If you have a hankering after other things that you know are wrong, these other temptations will rush up and put in their plea. They will say, "You yielded to the appetite for cider; now be fair and consistent all round, and let *us* have *our* chance too." The one appetite is like the corn I told you about—it will streak over to the other, and they two will mutually help each other. If you have been keeping your temper pretty well under control, and a sudden temptation comes over you, the memory of that cider experience will streak over to the temper, and you will be ever so much more likely to give way. You know intemperate men get mad on the slightest provocation, and act without scruple or sense. If you have been battling with some low appetite or passion that need not be mentioned here, they all start up with unwonted energy; and if the three get united in trying to storm the citadel—the citadel held and ruled by reason and a Christian spirit—you will find resistance will be like one man fighting against three strong men who have pounced upon him all at once. "When a strong man armed keepeth his palace his goods are in peace; but when a stronger than he shall come upon him, and overcome him, he taketh from him all his armor wherein he trusted, and divideth his spoils."

Giving way to one little temptation started the whole of it. When a man feels himself sinking it begins to be exceedingly hard for him to attend worship as usual, and to go through the forms of daily worship. The Bible begins to seem to him arbitrary and unreasonable. He begins to hate God's people and God's word, just for the reason that "men love darkness rather than light, because their deeds are evil." And the next verse makes it plainer still: "But he that doeth truth cometh to the light, that his deeds may be manifest that they are wrought in God." You see, this latter individual loves God's holy word, and rejoices to meditate in it day and night. He did not let any spiritual "corn" destroy his peace of mind and his communion with his Maker. The wages of sin is death; and in the same line the consequences of just a little sin is *deadening* to one's spiritual nature. One little corn, if allowed to grow, saps one's very strength and vitality. So one little spiritual corn, if allowed to go unrepented of, saps and kills spiritual vitality. Bad men curse the name of God, and curse and jeer and ridicule his holy word. Why does a drunken man swear? and why does he hate Christians? That old veteran Paul knew all about it. He said, "Put on the whole armor of God, that ye may be able to stand against the wiles of the devil." Do not let any little sins kill out your spiritual enjoyment. Do not leave even the smallest break in the armor. "Wherefore take unto you the whole armor of God, that ye may be able to stand in the evil day."

GETTING UP STAIRS AND DOWN.

SOMETHING IN THE WAY OF PASSENGER ELEVATORS.

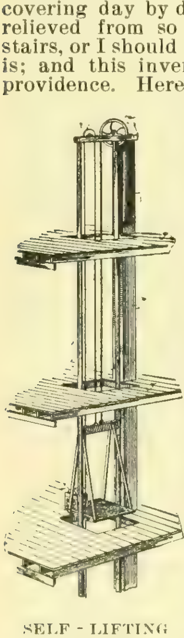
A few days ago, when I was rushing through the wax-room, the foreman began to smile. I stopped, and asked him what was wrong. "Oh! nothing," said he; "but I have been thinking it is not any wonder that you are wearing out, if you have to climb stairs, and rush from one room to another at the rate you have been doing this morning. If they could give you a *bicycle* that would enable you to run up and down *stairs*, it would be a big thing."

Well, we *have* a power elevator to carry heavy freight up and down—yes, three of them; and sometimes when I am tired I do avail myself of the elevators. But they are too slow, and a good deal of the time they are not on the floor where I want them. Besides, they are complicated. A few days ago a circular came floating through the mails, something to this effect:

"Friends, are you in any way interested in the matter of light passenger elevators? If so, will you please let us know?"

I think there was a picture on the circular; and, just for the fun of it, I wrote them, "Yes, I *am* interested. Tell us something more about your light passenger elevator."

A few days afterward they said there was a man waiting to see Mr. Root, and he said he must see me, and nobody else would answer. I found him; and when he told me he had come clear to Medina on purpose to tell me more about elevators, I was really sorry they had taken so much pains and trouble, for we certainly could not buy one then; but I said we should like to know something more about it out of curiosity. He assured me that it was all right, and that he was quite willing to pay his expenses to Medina and back again just to get a glimpse of A. I. Root and his establishment. He added he had *got* his pay already. When I began to ask him something about the elevator, I found that he was the inventor of the machine, and one of the most enthusiastic inventors I ever saw; and when he told what his elevators would do, and said he would put in one and take it all out without any expense to us, I began to laugh at his earnestness. By the way, for several months past I have been discovering day by day that I should have to be relieved from so much going up and down stairs, or I should "play out," as the expression is; and this invention seems to be a special providence. Here is a cut of it.



SELF-LIFTING ELEVATOR.

In the first place, it is not a power elevator at all. It is just a hand elevator. At first thought one would conclude that it must be very hard work. Now, it is not hard work at all. Under some circumstances it is not any work. It is like going up in a balloon and coming down in one. Did you ever try to imagine what fun it would be to sail through the air if you did not weigh *any thing* at all? or have you ever noticed a fish in an aquarium? He rises in the water, or sinks to the bottom, without moving a fin; and you can not discover his moving a muscle. He does move a muscle, however—just enough to change his specific gravity. When he wishes to rise in the water he makes himself a little larger; and when he wishes to sink to the bottom he makes himself a little smaller. Now, in this new elevator one rises and falls about as easily as the fish does; but he does it more quickly than the fish does. The inventor tried to explain it to us, but none of our expert mechanics could understand how it was possible, until we saw the thing actually at work. Let me try my hand at a description.

Perhaps when you were a boy you discovered you could throw a rope over the limb of a tree, and get up into the tree by simply pulling one end of the rope while your foot was placed in a noose in the other end. Keep this in mind. You have also seen very deep wells where a chain passed over a roller, having a bucket on one end of the chain, and a stone, or some other object for a counterpoise, at the other end. When the bucket of water and the weight were just balanced, almost no power at all was required to bring up the water. Now, with this elevator there is a big iron weight, weighing as much as the carriage and a man inside of it. The weight is 38 inches long and 6 inches in diameter, so it occupies but little space outwardly. Suppose the man and cage just balance the weight, as I have said. You will readily see that a very little power would move the cage and man together up or down. This power is applied by the passenger taking hold of the rope running over the smaller of the two pulleys seen at the top. This rope, in fact, goes right down through the cage. Very well. The man could spin up or down either by simply pulling on the rope. When he comes to the getting-off place, the instant he steps from the cage this iron weight would go down with a rush, and the cage would go up with a crash. What must be done to prevent such a catastrophe? Most of you know how the Westinghouse air-brakes, used on railway trains, are managed. The normal condition of the brake is such that a powerful steel spring operates on the car-wheels, holding them so rigid that the cars can not be moved until the engine raises them by pumping air into the proper machinery; therefore, when an accident happens to the engine, or to any part of the train, the brakes operate automatically. A similar brake is used in this carriage. It is released by the passenger setting his foot on the lever. He can not move at all until he stands on said projection on the floor of the cage; and the minute he lifts his foot to step out of the cage, it is locked so firmly that even jumping on it will not move it the fraction of an inch.

Just one thing more. Men and women do not all weigh alike; but our Quaker friend who invented the machine makes them weigh alike by a very simple device. Right near at hand in the cage is a box of rolling weights. They look like small grindstones, only they are made of cast iron. Some are thick and some are thin. This makes them weigh differently. Now, when you grasp hold of the rope, and step on to the cage, you roll one or more of these weights out of the box into a similar box in the cage. Put your foot on the brake while you hold on to the rope, and you soon decide what weights will just about make a balance. After having run up and down a little to see that the weight is adjusted, it is as easy to go one way as the other. You are now ready to travel. Just hold your breath now, and I will stop here to see how long it takes me to go from the office, where I am now writing, down into the seed-room, 30 feet below, and back.

Here we are! gone just 14 seconds. Our Quaker friend says that one of the men, after the machine had been up several weeks, so that he had had some practice, went up *60 feet* and down again in 14 seconds; and I presume Huber or some of the rest of the boys will very soon "break the record" I have just made above.

Now, if I should stop right here you might say this machine is a most wonderful invention. I told friend Williams I should consider his discovery worth *half a million of dollars* if it were not for one little defect. Unfortunately it rather looks as if man's ingenuity and skill could hardly remedy this defect, trifling as it may seem. If one man or one woman were to use the machine alone, this defect would never appear. It is this: Suppose you run up to one of the upper floors, and you leave the cage where you step off. There it must stand until either you or somebody else wants to go down again. Why not pull it down with a rope?

you may ask. Well, in that case you would have to pull as much as an average man weighs. In fact, if you were a little under weight you might hang your whole weight on the rope, and it would not come down then, because you are not heavy enough to make it come down. Another thing, that ingenious brake, with its terrible clutch, holds the cage like a grip of death until somebody steps on it with suitable weight. Somebody weighing 100 pounds or more must step on this brake and bring the cage down. Two *can* go up together, it is true. but they will both have to pull on the rope. If the second man weighs 150 pounds, *each* one of the two must pull 37½ pounds to make up for his weight. Please notice, that as you pull down on the rope you also lift a part of your weight from the platform on which you stand. Changing the balance-weights makes *some* difference; but there has got to be some work done to carry up more than one person. Two children weighing 75 pounds apiece will go up just as easily as one man weighing 150. But if one of the children wants to go down alone, he has got to pull up on the rope *half* his own weight. We have had the machine at work for only two days now, at this writing. A good deal of the time, when somebody goes up, somebody else wants to go down, and so the apparatus is kept pretty busy. When anybody wants to go upstairs he glances toward the elevator. If the cage is on his floor, well and good. If not, he must go down by the stairs. The principle is this: As the elevator requires but little power, just as many pounds of people are expected to go down during the day as go up. Of course, this may vary a little by what one may pull on the rope or hold back on the rope. Our pastor was just in; and as he weighs 165, he was obliged to hold back 15 pounds in going down, and pull up the same weight in coming up. The adjusting-weight, you see, would not help anybody weighing above 150. The inventor seems to have decided that 150 is about the average weight of humanity, counting women and children who may be likely to want to use the apparatus. This morning, some stones weighing about 300 pounds each were needed from the basement. Two men managed it very easily. A stone was placed on the cage so as to rest on the brake. Then a man in the basement pulled down 150 pounds on the rope, and one on the floor above pulled down also the same weight, and the stone was lifted up without much trouble. Of course, somebody had to hold on to the rope until the stone was lifted from the brake.

In investigating this subject a queer fact seems to come out. In one sense it is not queer at all, and in another it is. It is this: After you get up in the morning you commence going up and down, and keep going up and down more or less all day long. If you weigh 150 pounds, that much weight is elevated by strength of muscle, and let down a great many times during the day; but if you sleep in the same bed at night, the sums total of going up are exactly equal to the sums total of going down. You land at the same spot. Now, if one could be made to balance the other, a great deal of hard work would be saved; and friend Williams, by his invention, does make one balance the other—at least, when you go up and down stairs.* For instance, it takes quite a little power to lift 150 pounds up two or three flights of stairs; and the way we work it, it usually takes almost as much exertion, and sometimes I think it more fatiguing exertion, to go downstairs than to climb up. Our juvenile friends sometimes cut off a part of going *down*-stairs by sliding down the banisters. Well, now, this invention not only cuts off the labor of walking upstairs, but it stores up the force you expend, and saves it until the same force you exerted in going down will at some future time during the day lift you up. When I go down 30 feet with this new elevator, I raise that big weight up just as many feet as I come down, and there it remains suspended just under the roof until I want to go up again. Then it does all the lifting, and does not cost any thing. You have heard people tell about making one hand wash the other. Well, this new elevator does that very thing. I told you my new invention of the exhaust steam had resulted in a storage battery for heat. Well, friend Williams has now a storage battery for *muscular force*. Why, yes; you can sit in an easy-chair, if you choose, and in going down from the attic to the basement you develop quite a quantity of muscular force that remains stored up in that big iron weight until you wish to use it in going up. We store up electricity in storage batteries—yes, enough of it so that they run street-cars by the force stored up; and we are storing up the heat contained in the exhaust steam, and saving this to warm our houses nights and Sundays when there is not any steam escaping. Finally, we are storing up the force developed while we go downstairs; and, mind you, the going downstairs can be done in an easy-chair besides; and then this force lifts us up at some other time. Perhaps it will not always be done with big iron weights. I have thought of having a big tank, say upon the roof. Every time anybody goes down the elevator it lifts a lot of water which is poured into the tank. If the goings up do not happen to exactly balance the comings down, then we will have a pump to reinforce the water needed in the tank; and we need a little more too, you know, to overcome friction; yet with the ball bearings that we have on our wheels, and all these other things to reduce friction, it will not take very much. And, by the way, if the force developed in riding down hill on a wheel could be properly stored up it would go a great way toward carrying you to the top of the next hill; and we do this already to a certain extent by riding down hill at such speed that we acquire almost enough momentum to carry us to the top of the next hill. Now, who comes *next* in this business of storing up natural forces—the waste forces, if you choose, that are being set loose all around us?

The above apparatus costs from $100 to $200, according to the distance up and down it has to travel; and after one has climbed stairs until he is pretty well used up by the operation, he is prepared to appreciate the invention. It is manufactured by the Self-lifting Elevator Co., Delphos, O.

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* Just think of it! You could go a mile high, and down again, with almost no effort at all on your part, if you had a pulley up at the top and a rope thrown over it. Some of you may be sharp enough to suggest that the rope would weigh something. But friend Williams has managed that part of it. No matter whether the cage is at the top or bottom, the amount of rope on one side is just equal, and therefore just balances the amount of rope on the other. Such an arrangement could be put up on the Washington Monument, at Niagara Falls, or even at the Yosemite, Cal., or in the Grand Canyon of the Colorado; and it would be as much fun for a visitor to fly from top to bottom, and *vice versa*, as to ride a wheel. Why, if I could have a steam-engine to pull me up just as well as not, I should greatly prefer to grasp that rope and spin myself up. There is no limit to your speed, except the rapidity with which you can put one hand above another on the rope. Why has not some enterprising Yankee thought of it before, and rigged up such a thing, charging admittance for the privilege of flying up and down as fast as you please?

HIGH PRESSURE GARDENING

SOWING GARDEN SEEDS IN THE FALL.

We clip the following from the *Mayflower:*

> How many sow their tomato, beet, onion, parsnip, and carrot seed in the fall, just before the ground is frozen? It is true, that plants from seeds thus sown are much superior, especially in earliness, to spring-sown seed.

As there is no name appended to the above, we suppose it is editorial, from Floral Park, N. Y. We know tomato seeds will stand over winter, for they come up all over the garden, when the winter is warm enough; but in our locality, by the time tomatoes come up in the open ground they are usually too late for most people. As we have never seen beets, onions, or carrots come up from self-sowing, we feel a little doubtful about it. Perhaps, however, it is because very few people allow beets, onions, and carrots to go to seed. We frequently raise our own parsnip seed, and parsnips sometimes come up quite thickly, so we think it quite likely the planting could be done in the fall. The most of our ground, however, especially our heavy clay ground, during the winter gets packed down so heavily by the sun and rain that we greatly prefer to have it mellowed up and harrowed fine in the spring, before the seeds are put in. With light sandy soil, however, the plan would, very likely, work all right. Can anybody tell us about it who has tried sowing beet, onion, and carrot seed in the fall?

By the way, I am greatly vexed many times with our agricultural journals because they do not give the date and residence of writers. In many of the communications a man will say, "It is not too late to get a crop, if the seed is put in right away now." But with no date to the letter, how is anybody going to know what *now* means? The editor may have held the communication a month or two before putting it in. Again, somebody may give full particulars, and tell how he succeeded in getting a great crop, and yet omit to tell *where he lives*, and give no clew to the reader to guess. What does his communication amount to in such a case?

One thing more about sowing tomatoes in the fall. Livingston and Day, two great authorities on tomato culture, say that tomato-plants that come up in the garden can never be relied on at all. I think they both state that such seeds are likely to produce a different tomato from any thing you ever had on your grounds; but neither of them could give a reason why. I remember one season of finding a vine that came up unexpectedly, and got so large in a short space of time that I had not the heart to pull it up. It gave us an enormous crop of most beautiful *cherry* tomatoes; yet I can not remember that I ever purchased any cherry-tomato seed in my life. The seed may have been mixed in with some other kinds by accident; but our seeds are so very clean that we get nowadays of the regular seedsmen that it hardly seems possible. Is it not more likely that it came from stable manure that we buy all over town?

TOMATOES FROM THE SEED IN 26 DAYS.

Speaking about getting tomatoes in a very short space of time reminds me that friend Mills advertises seed from a strain of tomatoes that has produced ripe fruit in only *26 days* from the time the seed was sown. My first impression was that he would injure his reputation among good men by publishing such statements. Since then I remember seeing with what wonderful rapidity a tomato-plant will grow when every thing seems to be favorable. When we were building our machine-shop there was some exceedingly rich ground where I had been having plant-beds. It was mostly old stable manure, so finely rotted that it was just beautiful soft black compost. It had to be moved at once. For safe keeping I put it down near an evergreen-tree. Tomatoes sprang up almost as if by magic; and, under the influence of the warm July weather, and plenty of warm rains, they grew almost like Jack's famous beanstalk. I felt sorry for the poor things, thinking they could be of no possible use; but they did not seem to feel sorry for themselves a particle. I supposed that, of course, it was too late to think of getting tomatoes from the plants. But the plants were of full size in almost no time at all; and then recognizing (or at least it seems they did) that they would have to "hustle" if they would escape frost they sent out blossoms, and had ripe tomatoes before one would think it possible. There was not any thing on our grounds where we were raising tomatoes that could compare with those by that evergreen-tree. It reminded me of a sitting hen when she steals her nest out in the weeds, and hatches out more chickens, and finer ones, than the highest-priced incubator ever thought of doing. Is it not funny that old Dame Nature sometimes, when she gets into a rollicking mood, just beats all the old veterans, and does not seem to make any fuss about it either. Well, I planted the seeds of those wonderful tomatoes—"the earliest tomato in the world," etc. They were planted March 27th, in the very best place in our best greenhouse; and at present writing just 8 days after, several of the seeds are pushing through the ground. Only 18 days are left out of the 26. The seeds are precious, so we stuck a toothpick down about each one so as to be sure we did not get swindled by some volunteer tomato. By the way, did anybody ever see tomatoes come up in the greenhouse as quickly as they sometimes come up outdoors when every thing is just right? We saved half of the packet, and we are going to wait till the very best time in June, and see what we can do with the remaining seeds in getting tomatoes in a short time. If I make it in *twice* 26 days I confess I shall be pretty well pleased.

THE BLIZZARD THE LAST OF MARCH.

Like most of the rest of you we got caught; but I really do not see how we could have helped it very much, unless we went to the expense of more sashes; and in some cases the plants we lost were worth almost enough to pay for sashes to cover them. The trouble was, we had April weather, or almost May weather, during the greater part of March, and the plants would grow in spite of us. I do not know how we could have well kept them back. The tomato-plants crowded the greenhouse so that they *had* to be put outside. In fact, some of them got long-legged as it was. Well, when they had to go outside, the sashes had to be taken off the cabbage to cover the tomatoes; and our cold-frame cabbage-plants just took hold and grew without any sashes at all. I confess it seems a shame to handle sashes all winter long, and get a splendid lot of cold-frame cabbage-plants clear through the winter up to the last week in March, and then let them freeze for want of sashes. Of course, some of them will fetch up again—may be many of them will; and perhaps they will be as good a sever; but it will throw them back so late that they are no better than spring-raised plants, unless, indeed, the great bushy roots should give them an advantage. It is the same with the onion-plants, and quite a few other things. We utilized every thing in the shape of sash and shutters, and then used cotton cloth and blankets; but I thought that surely those hardy cold-frame cabbage-plants would stand any weather we should get so near April 1. Here is where another warning comes in. I think that, during every previous spring, we have found the beds heated by exhaust steam would stand the hardest freeze without injury. But *this* spring they really suffered worse. I presume the reason was, the bottom heat, together with the fine weather, had induced a rank tender growth; and I think the bottom heat would have warded off any ordinary frost. But only 15 degrees above zero every night for almost a week was more than they could stand. We had peas up in the open air, two inches high. It did not kill them, but it scorched some of the top leaves. I think it was the first time I ever saw peas that had come up in the open air in the spring, hurt by a frost or freeze. The lilacs near our house were showing the blossom-buds. The freeze killed the new growth, and I do not know but it pretty nearly killed the bushes. Some peach-trees were beginning to show the pink of the blossoms buds; but, to my surprise, these at present seem to be unharmed. I presume that, a little further south, where fruit and other things were still further advanced, the damage is greater than in our locality; at least, the following letter seems to point that way:

> Every thing gone up with the Easter freeze. Alaska peas, 4 inches high; potato-onions, 10-inch; seed onions; lettuce, radishes, etc., well up, all destroyed, except the large onions, which are starting again. Frost and ice last night.
>
> Rugby, Tenn., April 3. MRS. M. S. PERCIVAL.

Let us not be in haste, however, to borrow trouble. After almost all such cases of severe weather in spring we do not find things after all as bad as many imagined they were. It is not such a great calamity, after all, to have our fruit thinned off a little so as to prevent a glut in the market. The only trouble is, this thinning does not come on all alike. Some have nothing left, and others are uninjured. I believe, however, this is true, generally speaking: The wide-awake, energetic gardener or fruit-grower gets ahead of the frost by some hook or crook when other people do not. During all this spring we have been getting 20 cts. per lb. for spinach and beet greens. I put the price up so people would not insist on having them when they were only half grown. But they would have them nevertheless. We sold lettuce all winter for 20 cts. per lb., but now we can not supply the demand at 30 cts. Green onions do not seem to sell as they usually have.

ABOUT HAVING MORE SASHES TO MEET CONTINGENCIES.

I think there is an extreme both ways. It does not pay to have a great lot of sashes that are not earning you any thing; and it does not pay, either, to have stuff killed for want of sashes. But with us, somehow or other it seems impossible to manage so that each one of our 150 sashes may be earning as much money as it ought to. I presume some of our sashes earn two or three dollars in a season; but there are a good many more that do not earn a quarter as much. It wants a better manager, or a manager who has not so many other things to look after. And, by the way, what a chance there is for keen headwork and intelligence in this matter of handling sash! It is, however, work that I really love, and I can hardly imagine any thing nicer than watching the clouds, the winds, the rain, the snow, and the frost, keeping all the while in touch with the Weather Bureau, and managing so as to avoid moving sash uselessly, and yet giving your stuff all the air it needs, and at the same time avoiding losses. Like almost every thing else, however, this must be learned by degrees. Commence with half a dozen sash; or, if you are a boy in your teens; get two sashes. Plan and figure to make the most of the half-dozen; then go on up to two dozen, then 30, then 100, and work just as wisely with the large number as you did with the smaller.

SPRAYING TO KILL THE INSECT-ENEMIES OF OUR FRUITS AND PLANTS.

The Ohio Experiment Station comes out with newspaper Bulletin No. 136, with such high recommends for the above, that one might almost think they had spraying-pumps or medicines, or something of that sort, to sell. For instance, in their heading they say:

"Spraying profitable; several hundred per cent sometimes realized."

Somehow it gives me a feeling of pleasure and satisfactien every time I see one of these experiment-station reports, because we know they come from disinterested parties, and from our best and most careful students and thinkers, who have no object before them except an unselfish desire to benefit the farmers and horticulturists of our land. May God speed them and give them wisdom! In this bulletin they have simplified and cut down the directions so that it gives the latest knowledge in regard to the subject, in the very fewest words; and I would advise our readers who want light on this matter, and who have not seen this bulletin in print, to send for it. Address Experiment Station, Wooster, O., and ask for "newspaper Bulletin No. 136."

RASPBERRIES AND STRAWBERRIES—SOMETHING VALUABLE IN REGARD TO THE CULTIVATION OF RASPBERRIES.

I have "Root and Terry's A B C of Strawberry Culture." Perhaps some can raise larger crops of strawberries than I; but it is said ours are the finest berries in the Cooperstown market. They averaged us 14c per qt. Our best did not sell for less than 15, when others were selling for 8 and 10. I should like to tell you about our raspberries. We have 141 rods, from which we picked 100 bushels of large fine berries last summer. It was said by people who visited our raspberry-field to be the finest fruit they ever saw. I could sell when others had to take their berries home. I grow them in thin matted rows, 6 feet apart, with good strong posts driven on each side the row, about 40 feet apart, leaving the row one foot wide, then run a No. 12 or 14 annealed wire around the row, about 3 feet from the ground, drawn as tight as I can draw it, and then fastened to each post with a good staple. I hoed and cultivated them thoroughly until they were in full bearing. I manure heavily every fall with any kind of stable manure. The canes grow strong; and, by leaving in the old canes till spring to support the new ones, the ground is so shaded that once cultivating is all that is needed. In the spring we cultivate once, break out the old canes, pick the berries, manure in the fall; no hoeing is now needed. Part of our field has not been hoed in five years, and is free from weeds.

In footnotes on page 753, Oct., 1893, you say the only drawback is the expense of straw sufficient to keep down the weeds, and keep the soil damp. You need not pay out one cent, nor use any straw for mulching to kill the weeds or keep the soil damp. Our raspberry-canes are set on the driest ground we have, and we see no difference about seeds in the manure. The bushes kill out all weeds, and keep the soil moist. We expect to pick 125 bushels the coming summer. E. U. Parshall.

Cooperstown, N. Y., Mar. 8.

[Friend P., your suggestions are indeed valuable; but I am afraid the rest of us will not all succeed as well as you do; and, by the way, you have not told us what the variety is that you work thus in matted rows. The weeds in the manure that we get at our livery-stables, especially the docks, dandelions, and thistles, would choke out any variety of raspberries we have ever cultivated. In fact, I have been trying the same thing. When Terry recommended the straw mulching it occurred to me I could get coarse stable manure almost as cheap as the straw, and I thought it ought to be worth ever so much more. I like this coarse stable manure for mulching, tiptop, if it were not for this one thing—the weeds. Our Turner raspberries have made such thick matted rows that the weeds grow very little; but the raspberries also amount to very little on account of the tremendous amount of plants. When you tell us what variety it was, will you please say also how much ground is occupied by the 141 rods?]

NASTURTIUMS.

Nasturtiums are sometimes used in salads, and to garnish meats, not omitting the flowers when in bloom; and the seed, at least, is often used in pickles. Botanists apply the name "nasturtinum" to water-cresses and allied plants. Ruth Moore.

Tiffin, O.

[Landreth catalogs it as "Indian cress, or Nasturtium."]

THE EXCELSIOR BEE PALACE, AND PATENT HIVES IN GENERAL.

It has been so long since any thing of this kind has come up, we had begun to hope that it was ended. But a circular just comes to hand from Washington, D. C., from which we make the following extract:

> Then get as many swarms of bees as you are able to get (the more the better), and get them now this very spring, and commence bee-raising at once, and I promise you that this very year you will lay the foundation of an independent fortune, and at the same time you will find it the most pleasant and profitable occupation of your life. Do not neglect it—do not lose this year's opportunity, and you will see "that hard times will come again no more."

Of course, the average bee-keeper of our land would only smile at such a circular; but it is the unlearned, and those unacquainted with the bee-journals, who may be entrapped. The circular is the more dangerous because it quotes A. I. Root as a man who has "built up a mammoth business, and accumulated a colossal fortune" in bee culture. It also quotes Jennie Atchley as the owner of an apiary of 1000 hives, having made all her money by raising queens. Perhaps Dr. Simpson means to be truthful in this circular; but it is really a string of falsehoods and misstatements. I am inclined to think that much of it is the result of a want of knowledge in regard to bee culture. The last sentence in the circular rather gives us a clew to some of his extravagant enthusiasm; viz., "Farm, township, county, and State rights on reasonable terms." I hardly need add, that no patent hive or bee palace of any sort is needed to secure the very largest possible results in bee culture.

A. I. R.

SPECIAL NOTICES FROM BUSINESS MANAGER

CRANE SMOKERS.

We call the attention of our readers, in want of a good smoker, to the advertisement of the Crane, on another page. As now made they are simply perfect, and they are sent each one in a pasteboard box, which, for the dealer, keeps them in excellent shape.

BUSINESS AT THIS DATE.

Our receipts for the month of March show an increase over the same month for several years past. This was undoubtedly due mostly to the warm weather so long continued early in the month. Though orders are holding up well, the cold weather through which we have been passing has diminished them somewhat.

SECONDS IN RUBBER GLOVES.

We have several dozen pairs of No. 10 and No. 12 rubber gloves that were classed with seconds at the factory. The defects are so slight that, for all practical purposes, especially for handling bees, they are just as good as first grade. We offer them, while they last, at half price—75c a pair, postpaid, or $6.50 per dozen pairs.

SECTION-HOLDER BOTTOMS, ⅜x1⅞x18.

We have a quantity of section-holder bottoms ⅛ inch thicker than the regular size, which we offer at the same price as the regular ¼ inch, to those who prefer a heavier bar. They measure ⅜x1⅞x18 inches, slotted, for 4 regular 4¼-inch sections. Price 60c per 100; $2.50 for 500. With the ½-inch end-block, double this price.

GLOBE LAWN-MOWERS.

We quote a reduction of 50 cts. each on the prices of lawn-mowers given in our catalog, on page 50, to our readers and their friends. There is no better cheap mower made than the Globe. We have had one in use on our lawn for five years, and it runs easy and does splendid work. With above reduction the prices will be, for 10-inch, $3.50; 12-in., $3.75; 14-in., $4.00; 16 in., $4.25; 18-in., $4.50.

SPRAY PUMPS AND SPRINKLERS.

Those interested in these goods will find them listed again on the inside cover pages of this issue. I hardly think you will find pumps of equal value offered elsewhere for the low prices we name. Those who wish to buy in quantities, or act as agents, will do well to write for our wholesale prices, stating which pumps they desire prices on, and, if possible, the number wanted. As we have bought for this season nearly a thousand pumps and sprinklers, we are prepared to give bottom prices.

GREEN WIRE CLOTH FOR SCREENS.

Some have inquired if we still handle wire cloth for screens. This is listed on page 10 of our catalog. We have it in full rolls, 100 feet long, and any common width, 24, 26, 28, 30, 32, 34, 36, 38, 40, and 42, at $1.75 per 100 *square* feet, or cut pieces at 2c per sq. foot. We have also a few rolls 8 inches wide, 100 feet long, that we will sell at $1.00 each, and a few 12 inches wide and 100 feet long, at $1.50. This will do just as well for queen-cages and covers for nucleus hives as the wider, and it comes cheaper per square foot.

OFF-GRADE MAPLE SUGAR AND SYRUP.

The short crop of maple products in this section was the result of very warm spring-like weather during the first three weeks of March, soon after the sugar-bushes were opened. This was followed by another cold spell in which a good deal more sugar and syrup has been made. This is beautiful in color, but has a buddy taste. We could supply any who want this kind of syrup, at 30c per gallon less than the first run, and sugar at 3c per lb. less. We shall be pleased to mail samples of either for 5c to pay postage and packing. We can still supply first-run syrup and sugar as quoted in last issue; namely, $1.10 per gallon for syrup; in 10-gallon lots, $1.00; sugar at 10, 9, and 8 cts. per lb. for No. 1, 2, and 3 grades; ½c off in 50-lb. lots; 1c off in barrel ots of 300 lbs. At this writing we are a little behind on orders for sugar of best grade.

COWAN EXTRACTORS.

The orders that come, and the kind words which ollow, are proving beyond a peradventure that this s the best and most rapid honey-extractor obtainable at the present time. One man writes that he would not take $50 for his if he could not replace it.

We happen to have at Grand Island, Neb., a two-frame Cowan No. 15 for L. frame, which we will have shipped to any customer in the West, in want of that size, for $10.00—the regular price free on board cars. It being so far west it will be an advantage in saving of freight to some one in that section

SLICED WOOD SEPARATORS.

Since we have been furnishing sawed wood separators there has been a much smaller demand for he sliced ones, which, though not as straight and durable and nice to use as the sawed ones, yet answer a good purpose. Many prefer to use them but once, and then throw them away. We have quite a large stock of the following sizes, which we offer at reduced prices to move them off:

3½x17 and 17¼ in. at 20c per 100, $1.50 per 1000.

3½x18, or any length we can make by cutting off hese lengths, 25c per 100, $1.75 per 1000.

4⅛x17, slotted both sides, 30c per 100, $2.00 per 1000.

4½x18, slotted both sides, 35c per 100, $2.50 per 1000.

4½x18, slotted both sides, and slightly colored or mildewed, 25c per 100, $2.00 per 1000.

SUPERIOR QUALITY AND WORKMANSHIP.

It is a pleasure to read the many letters which come to us thanking us for the very fine quality of material and workmanship on the goods we are ending out this year. We give you, in Kind Words column, samples of these testimonials from time to ime. If we should attempt to give them all it would take more space than would be profitable for that kind of matter. These most often mention the Dovetailed hives, extra polished sections, comb foundation, extractors, smokers, etc. Some of the best we can not give, because they mention goods from other places to their disadvantage, and we do not deem it prudent or courteous to reflect in public print on the wares of our competitors. Some, however, have ordered goods from dealers supposing hat they would get goods of our make, and were disappointed. To such we would say that, if you want goods of our make, be sure you get them from us or one of the dealers who handle our goods. You will find a partial list of them on page 6 of our catalog.

EGYPTIAN OR WINTER ONION.

There is no other onion known at present that will winter like the above. During the recent freeze that killed almost every thing, they came out unharmed, and we are selling them in the market right along, taken right from the open ground. We have been wintering over the sets during the last winter, without any trouble whatever. The fact hat they are now beginning to sprout is a proof hat they are unharmed. They were kept in a very cold dry place; and as we have a large stock on hand we offer it at the following exceedingly low prices: Quart, 5 cts.; peck, 25 cts.; bushel, 75 cts. If you want to get a stand of Egyptian onions, now s your chance. While they make much larger and finer-flavored onions with heavy manuring, they will grow almost anywhere under most circumstances. In fact, they are about the hardiest vegetable or plant that I know of.

REDUCTION IN THE PRICE OF EARLY OHIO, EARLY PURITAN, LEE'S FAVORITE, AND RURAL NEW-YORKER POTATOES.

As the above varieties are beginning to sprout some in our cold cellar, we offer them, until sold, at he following reduction: Peck, 35 cts.; bushel, $1.00; per barrel of 11 pecks, $2.50. This makes them the same price as we have been selling the Monroe Seedling. We still have the latter at the same price, but *they* were raised and placed in the cellar so late in the fall that they are at present unsprouted, and about as firm and solid as when they were dug. This, you see, is the advantage of late-planted potatoes. We can not make any decline in the price of the Freemans; and one of the good qualities of the Freeman is, that they are very slow about sprouting or wilting, no matter whether they were raised early or late. Second size of any of the above potatoes, *half price.*

EDGAR QUEEN STRAWBERRIES.

We once offered this for sale, and then dropped it out of our list, and I am really ashamed to tell the reason. I guess I had better, though, after all. When we first got hold of it we had an impression that it was a *perfect* berry, and I was much delighted with its strong luxuriant growth and beautiful large berries. So I planted three rows, 40 rods long or more; but so many of the berries were gnarly and knotted that I concluded to drop it; and then somebody told me that it was imperfect, or pistillate, and I had neglected to put any perfect berries near it. In spite of this, last season it gave us an immense crop of large fine berries, but a good many of them were poorly shaped, from lack of a fertilizer. We have this spring a magnificent lot of extra strong plants that we can furnish at our regular prices; namely, 10 cts. for 10; 75 cts. per 100; $6.00 per 1000. If wanted by mail, add 25 cts. per 100 for postage. But be sure you plant some perfect variety for fertilizer every third or fourth row, and *don't you forget it.* We can also furnish nice Warfield plants (imperfect) at the same price.

TOBACCO DUST AS AN INSECTICIDE AND FERTILIZER.

During the past winter all our lettuce has been set in the greenhouses in a mulch with perhaps from half an inch to an inch of tobacco dust spread over the surface of the beds, and not a green fly has been noticed from the time of setting out the plants till harvesting the crop where this precaution has been taken. On three different beds, however, where we neglected to do this, the green fly was worse than I ever saw it before. In fact, two of the beds were ruined, almost before I knew it. Our Experiment Station has said, I believe, that the tobacco dust is worth about as much as stable manure as a fertilizer. I can readily believe this, from what experience I have had; and I consider it the best and cheapest insecticide for any plant that is close enough to the ground so you can cover plant and all with tobacco. Our squash-boxes and wire-cloth frames were not used last season at all, because the tobacco rendered them unnecessary. We have it in 10-lb. packages at 2½ cts. per lb.; 25 lbs. at 2 cts. per lb.; 100 lbs., $1.75; and for an original case containing about 400 lbs. we will make the price on the case and all an even $5.00. If all the tobacco produced in the world could be confined strictly to killing bugs and fertilizing plants, what a wonderful stride our people would make, both in godliness and prosperity!

NEW EXPRESS SHIPPING ARRANGEMENTS.

With the advent of the new east and west railroad four years ago came the United States Express Co. to do business in Medina. We then had both American and U. S., and a certain degree of competition. Last September the U. S. supplanted the American on the old railroad, leaving us with only one express company again. A short time ago, owing to a disagreement between this company and the Adams Co., the latter would not receive express matter from the U. S. Co. for points where the Adams could alone make delivery, unless all charges were prepaid. This was making us no little trouble, and we proceeded to make arrangements to avoid it if possible. We have completed plans that we have been putting into execution for the past two weeks. We send all express matter, destined for delivery offices that are exclusively American, Adams, and Wells, Fargo & Co., by freight to Akron, O., 20 miles east, and it is there started promptly to destination by these companies respectively. We have one freight train each day to Akron; and in cases of great urgency we can send by express, there being two express trains daily. By this arrangement we are prepared to ship by any of the four companies —U. S., Adams, American, and W., F. & Co., besides getting Akron competitive rates on the latter three. This means quite a saving in charges to our customers who can receive their express shipments only by the three last-named companies. We go to the extra trouble involved, and pay the freight to Akron ourselves, for the benefit of these customers. The freight in the course of a season will amount to quite an item, being 25c or more each day. If, therefore, those preferring delivery by Adams, American, or W., F. & Co., will send with their express orders an extra 5 cents on amounts of $ .00 or less, and 10c on orders from $1.00 to $10.00, it will help materially to meet this extra expense we go to for your benefit. As an illustration of what you gain, we will suppose a customer in Phœnix, Ariz., orders, by express, goods weighing 10 lbs. If we ship by U. S., the only company doing business here, and they turn it over to the W., F. & Co., the only company doing business in Phœnix, the charges through will be $2.40. By shipping the 10 lbs. from Akron, all the way by W., F. & Co., the charges are only $1.65—a saving of 75c. This is an extreme case; but it illustrates the advantage of shipping all the way by only one express company when it is possible.

B. P. S. PURE READY-MIXED PAINTS.

We have recently put in a full line of family, carriage, floor, and house paints, ready mixed, in cans of various sizes, and all colors. There has been so much cheap adulterated trash put upon the market, which has given no end of trouble and dissatisfaction, that we would not put in the stock without the best assurance from the manufacturers that we were to have pure goods. They guarantee to take every pound off our hands, and pay for analysis, if found adulterated. Wishing to confirm or disprove their representation, and satisfy ourselves, we went to the expense of an analysis by the State Chemist. His report confirms the claims of the makers of the paint, that the goods are strictly pure white lead, zinc, and linseed oil, with pure colors for the proper tint, and a slight trace of dryer. For bee-hives we use and recommend white. If for this or any other use you require colors, we can send you on request the color-card, with prices. The paint is made by the Burtiss, Paterson & Sargeant Co., of Cleveland, O. Prices for bee-hive paint, as quoted in catalog, are, 1 pint, 25c; quart, 45c; half-gal., 85c; gal., $1.60. Colors for house-painting furnished at the same price. In writing for prices and color-cards, state for what you want to use the paint.

SECOND-HAND FOUNDATION-MILLS.

We offer at special low prices the following list of second-hand foundation-mills which have accumulated on our hands during the past few months. If any desire a sample of foundation made on these mills before ordering, we shall be pleased to mail it on request stating the kind or number of mill that you want.

One 6-inch hex., No. R; price $10.00. This mill is in good condition, and just right for surplus foundation 9 to 10 feet to the pound.

One 6-inch hex., No. Y; price $10.00. This is a good mill, suitable for surplus foundation 10 feet to the pound.

One 6-inch hex., No. A A; price $10.00. This is in good condition, and suitable for surplus foundation 10 feet to the pound.

One 6-inch hex., No. 1461; price $9.00. This is in fair condition, and will make foundation 10 feet to the pound.

One 10-inch round-cell No. F F. Price $15.00. This is a late style and make of mill, practically equal to a new one.

One 12-inch hex., No. 1532. Price $22.50. This is almost a new machine, and a bargain for the price.

All the above have the latest style of frames; the following are old style:

One 10-inch round-cell heavy shallow wall, No. EE. Price $8.00. This is an old-style mill little used, n fair condition.

One 10-inch round-cell heavy shallow wall, No. GG. Price $8.00. This is an old-style mill, almost new, but a fair machine for the price at which we offer it.

One 10-inch round cell, heavy, No. W; price $10.00. This is suited for only heavy foundation, and will answer nicely for that purpose.

One 9-inch Dunham, round cell, heavy; price $8.00. This mill is in fair condition, and is suited for heavy foundation only.

One 10-inch Pelham, almost new, and of the latest pattern, for heavy brood foundation only. Will sell for $9.00.

SECOND-HAND MACHINERY.

We still have on hand quite a line of second-hand machinery. If any of our readers or their friends contemplate putting in machinery we are prepared to fit you out from cellar to garret with every thing you need in engines, boilers, machinery, shafting, pulleys, hangers, belting, saws, etc. The following is a partial list of the second-hand machinery w have to sell. If you desire further particulars w shall be pleased to hear from you.

One 20-H. P. Fishkill horizontal engine, rebuilt and as good as new; would cost new $400; will sel for $175, or with new boiler for $375.

Two four-piece section-machines, as good as new they cost new, $85 each; we will sell them for $2 each.

A lot of ripping-tables with heavy mandrel, an screw and chain attachment, such as we used fo sawing sections in the old way; worth $25; will sel at $17.50 each, including 1 rip-saw.

SPECIAL SECTIONS AT SPECIAL PRICES.

Although we have sold quite a number of these yet we find that we still have in stock the followin list of No. 1 white sections, old stock made before w began making extra polished. We offer these, whil they last, at $2.50 per 1000; 2000 for $4.50; 3000 fo $6.50, or 5000 for $10.00. At the rate they have bee going they are not likely to last long. When thes are gone we shall have none but our extra polishe sections to offer, and the No. 2 grade selected fro them in manufacturing. The sizes on hand her are as follows:

22,000 4¼x4¼x1$\frac{15}{16}$, open four sides.
35,000 " " 1$\frac{13}{16}$, open top.
4,000 " " 1$\frac{13}{16}$, closed top.
5,000 " " 1¾, open top.
9,000 " " " closed top.
52,000 " " 7 to foot, open top.
6,000 " " 7 to foot, closed top.
26,000 " " 1½, open top.
12,000 " " " open four sides.

Besides the above we have at Bankers, Hillsdal Co., Mich., the following, which are offered at th same prices:

20,000 4¼x4¼x1$\frac{15}{16}$, open top.
30,000 " " 1¾ and 7 to foot, open top.

All No. 1 white, made two years ago, and choic sections. Send orders for these to us here at Medina

In our stock at St. Paul, Minn., with H. G. Acklin 1024 Miss. St., we have about the following quanti ties of No. 1 white sections, which we offer at th same prices. Send orders to above address for thes or any other items needed in the line of bee-keepers supplies. There is a full stock ready for promp shipment, but none of our new sections are in stoc there yet.

18,000 4¼x4¼x7 to foot, open top.
30,000 " " 1⅞, open top.
8,000 " " 1$\frac{15}{16}$, open top.

Also of No. 1 cream, at same price as on stoc here named below, the following:

9,000 4¼x4¼x1⅞, open top.
10,000 " " 1$\frac{15}{16}$, open top.

Of No. 1 cream and seconds, from our new extr polished sections, which are about equal in value we have in stock here the following, which we offe at $2.00 per 1000; 3000 for $5.70; 5000 for $9.00.

7,500 4¼x4¼x2 open top.
7,500 " " 2 open four sides.
23,000 " " 1$\frac{15}{16}$, open top.
10,000 " " 7 to foot, open top.

Of other sizes of No. 1 white sections we have the following at the price annexed:

3500 scant 6 x 5 x 1$\frac{15}{16}$, at $2 50 per 1000.
500 5¼x5¼x1⅞, closed top, at $3 00 per 1000.
2000 " " 1$\frac{15}{16}$, open " " 3 00 "
2000 5 x6 x1⅞, " " " 3 00 "
700 5½x5½x1⅞, " " " 2 00 for lot.
9000 6¼x5¼x2 " " " 3 00 per 1000.
4500 " " 1¾, " " " 3 00 "
6000 5¼x6¼x1$\frac{15}{16}$, " " " 3 00 "
2000 " " " closed top, " 3 00 "

The above are all choice fresh sections, and a bargain at the price. We have, besides, a lot of odds and ends too numerous to list here, of which we shall be pleased to mail a list of sizes, quantities, and prices at which we will close out, to any one who is interested, and sends us a request for it. You may find in it something you can use at trifling cost.

VANDEUSEN THIN FLAT-BOTTOM FOUNDATION.

If any of our customers prefer VanDusen's flat-bottom foundation we can supply it in regular 25-lb. boxes at 50c per lb., or $12.50 per box. We have it in stock to ship with other goods when so desired

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS is our household companion from January to January. **W. ANDERSON.**
Randall, N. Y., Dec. 28.

I received your sample sections, and would say hey are perfection. They surpass any thing I ever saw. **J. E. ENNIS.**
Attica, O., Feb. 19.

Your A B C and GLEANINGS have done me good service, and I do not want to be without GLEANINGS as long as I keep bees. **I. W. HOFFMAN.**
Roselle, Ia.

I saw some very nice onions raised from plants you sold last year—Prizetaker, I think. Have you plants for sale this spring? **C. A. STANLEY.**
Garrettsville, O., Mar. 26.

The seeds I got of you last year gave me the best satisfaction of any that I have ever had, both in quality and price. **J. W. BELL.**
Mancos, Col., Jan. 3.

I got, about one year ago, 100 Hoffman frames rom you, and they are just lovely. Please accept my thanks for GLEANINGS and for all its teachings or this and the next world. **DAVID DICKIE.**
Sparta, Ill., Feb. 1.

The 10 hives you shipped me last season I am well pleased with, and the cheapness of them is quite an tem. I have some hives that cost $5.00 each, and 'd rather have the Dovetailed by quite a sum in its avor. **WILL MEAD.**
Stonecoal, W. Va., Mar. 10.

My brother, Dr. Ford, is carried away with the Comfort foot-stove that I bought of you for him. He wants you to send him the hand-stove that you advertise, and I have concluded to take one of them myself. **T. S. FORD.**
Columbia, Miss., Mar. 16.

The goods in order No. 25,444 were received in the best condition. I note with particular satisfaction he careful packing. Thanks to it, in the whole consignment absolutely nothing was broken.
RICHARD PFAU.
San Jose, Costa Rica, C. A., Dec. 21.

Five years ago I sent you ten cents for a pair of glasses, and they have done me excellent service; but I have broken them, and now I send for another pair. I am 67 years old. If you make as good a selection as you did before, I shall be suited.
Homosassa, Fla., Jan. 8. **MRS. M. TURNER.**

The goods I ordered of you came to hand to-day, all in good order, except that the glass cover for the wax-extractor was broken badly. Every thing else was in good order. The hives are the best I ever bought anywhere. **CHAS. J. HARRIS.**
Steinauer, Neb., Mar. 5.

I can not think of having a "D" put after my name while I have any prospect of having a dollar to pay for GLEANINGS. I look for it almost as anxiously as I could for a love-letter. I am a young man too. I like the men who are doing so much to make your paper what it is. **LOUIS MAPES.**
Headford, Ont., Feb. 5.

I must say that the hives and fittings are very fine. did not find a bad piece in 20 hives that I have set up. One of the late GLEANINGS was a regular California boomer. Rambler's articles are very good. n fact, I think he is the best writer of all the bee-papers that I take. **HARRY L. JONES.**
San Francisco, Cal., March 26.

I purchased an untested queen of you last August, and divided a swarm which I had increased from a two-frame nucleus formed last May; and by feeding every night for about six weeks I built them up to two good colonies, and both have wintered well. I like GLEANINGS in all its departments, and wait eagerly for its arrival, and frequently desert work for a few minutes to glance over the good things it contains. **W. S. COMRIE.**
Johnstown, N. Y., Mar. 24.

We are very much pleased with your journal, as it has been of much value to us, and we trust it will be still more so in the future, for we find in it many things that are very practical and interesting.
Oka, Que., Can. **F. SEBASTIEN.**

Every thing came in good order, and I am more than pleased with that No. 15 Cowan extractor. It s a daisy. I would not exchange it for $50.00 if I could not get another one in its place. Your comb foundation is splendid. **GEO. SCHAFER.**
New Orleans, La., April 5.

The goods I ordered are received in good order, in accordance with contract, except one extra saw-blade; but that is all right. Thanks for the extra two cents. It is a pleasure to do business with honest people. It opens up a bright prospect for heaven. May God bless you with needed grace, to the end of life. I am 78 years old. **D. L. BULER.**
Wauseon, O., Mar. 20.

The goods came to hand March 20, all O. K. Neighbors are well pleased. They say they don't see how you can make them for the money. There is only one fault—they are too white; then, again, how am I to stick the foundation to those sections? They are the nicest I have ever seen. I have distributed about half of those catalogs already.
Carbondale, Kan., Mar. 24. **JOHN WEIR.**

Mr. Root:—As I have been lately converted to the faith, I can not forbear giving you a word of encouragement in your good work. Formerly I used to side rather with the atheists; but, thanks to the Lord, I have found the truth at last. Your Home Talks are now the most interesting part of GLEANINGS to me. May the Lord bless you and continue you in your good work is my humble prayer. **CHAS. WAHLENBERG.**
Rich Mountain, Ark., Dec. 12.

The A B C book is a great help to me as a beginner, and I would not part with it for twenty times its cost if I could not get another one. I have changed my bees from loose to self-spacing Hoffman frames, as it is much easier for me to do so now, at the beginning, than it would be later on; and I find them a great improvement over the old-style frame. Dr. C. C. Miller is right about those everlasting footnotes. They enlighten the beginner, and I suppose the old hands can pick up valuable points too. Let them last for ever! **G. W. KUESTHARDT.**
Palmdale, Cal., Jan 1.

CLEAN PERFECT GOODS.

The goods ordered March 21st came in the best condition March 30. I am well pleased with them all. I do not see how you can supply such nice clean and perfect goods at so low a price. I have shown my goods to several bee-keepers here, and they are all as well pleased with them as I am; and although I have but little time for any other reading than that pertaining to my medical work, I always find time to read GLEANINGS. I much enjoy your Home talks.
Londonderry, O., April 6. **O. S. BROWN, M. D.**

A KIND WORD FOR THE RURAL NEW-YORKER, AND FOR CHEMICAL FERTILIZERS, ALSO.

[After what I said about the *Rural's* teachings on page 251, our good friend Collingwood, the Managing Editor, mailed me the letter below, which is too good to keep out of print. Long may the *Rural* be spared to do mission work among the farmers of our land.] **A. I. R.**

I have been a farmer for 40 years, with varied success. But declining health came with declining years, and hired help ate up all my profits, since we have had not only poor crops but declining prices. Last spring I felt I must "go to the wall," and made arrangements to tide me over about 2 years, when I felt I must be dependent on my friends if life was given to me longer. A copy of the *Rural* fell into my hands. I was interested, subscribed for it, learned I was farming too much but not good enough—not the right kind of crops suited to my soil, market, or condition of family help. I have braced up; and if I get as much help from the *Rural* and fertilizers this year as last I shall be rods away from that wall. **D. B. LOWE.**
Polkville, N. J., Mar. 15.

A KIND WORD FOR ONE OF OUR ADVERTISERS.

On page 216 you will notice the words, "Fay's Prolific Red Currants; large bushes for sale cheap." While we were planting out some of these currants received from friend Burdett, a tree-peddler came along. He admired the strong thrifty bushes, for who could help it? When I asked him what Fay's currants like those were worth he said, after referring to his list, "Fifty cents each." If anybody would buy them by the hundred he could sell them for 35 cts. When the bill came, how do you suppose it read? Why, it reads like this: "A. I. Root, dr., to 40 currant-bushes, at 5 cts. each. $2.00;" and there were *42 bushes* instead of 40. If "Fred" serves all his customers as he did us he ought to build up a big business. And, by the way, don't you believe it is better to write to the advertisers in your family paper than to purchase of "tree-peddlers"?

A. I. R.

THE QUESTION OF WAGES.

Friend Root:—I feel like saying amen to what you say in the Dec. 15th issue, under the head of "Ourselves and Our Neighbors," in regard to capital and labor. If more people took the same view you do, there would surely be fewer idle men and fewer hungry children and wives in this country. This trouble of persons becoming dissatisfied with the pay they get has caused more trouble and ill feeling among the laboring men than any other one thing I know of; and I am sorry to say we generally find the first men to kick about their pay are those who are well paid for all they do, already. It is a well-known fact that the foremen of every factory know better what any particular man is worth to his employer than the man does himself. I think it is a good rule that, when a man is paid what his employer thinks he is *really worth*, and he becomes dissatisfied, the best plan is to pay him off at once and let him try his luck somewhere else, as this dissatisfaction appears to be contagious, and in a short time there will be others of the same opinion, and soon a secret meeting, and next a strike, with a heavy loss for both capital and labor; besides, the customers of the factory are disappointed, and every thing thrown out of shape.

Now, I don't want you to think for a moment that I own and operate some big establishment. It is the contrary. I am nothing but a "greasy engineer" for the Southwest Natural-gas Co., and must depend on my wages for my bread and butter for myself and family, and so I speak as a laborer and not as the man who has the money.

A word to that engineer of yours. I have always made it a rule to close the valves on the gauge-glasses at night, and open them in the morning, which I think is good policy; but they are not always reliable, as they sometimes get stopped up over night; but as all boilers are provided with gauge-cocks (or should be), I always try them when starting up, and see how they compare with my glass. In fact, I have a way of raising them whenever I come around, and I know I have saved several boilers from being overheated, and perhaps there might have been an explosion if I hadn't this "dirty habit," as a fireman I had called it.

Grapeville, Pa., Jan. 12. P. D. MILLER.

If more employés would take the same sensible view of this matter that you do, there would be *more* men at work, and at *higher* pay.

Our engineer makes it a practice to close the valves on the gauge-glasses, and we know it is a good practice. One broke yesterday while we were running. If one should break at night there might be serious consequences if the valves were not closed.—ED.

CIRCULARS RECEIVED.

We have recently received price lists from dealers in apiarian supplies, queens, etc., as follows:

W. E. Smith Kenton, O.
A. E. Manum, Bristol, Vt.
J. N. Colwick, Noose Texas.
Charles H Sapp, Ravenna, O.
E. T. Flanagan, Belleville, Ill.
O. P. Hyde, Lampasas, Texas.
W. P. Crossman, Dallas, Texas
Wm. H. Bright, Mazeppa, Minn.
George E. Hilton, Fremont, Mich.
Mrs. J. N. Heater, Columbus, Neb.
G. L. Tinker, New Philadelphia, O.
Myers Brothers, Stratford, Ontario.
I. J. Stringham, 105 Park Place, New York.
Leahy Manufacturing Co. Higginsville, Mo.
Western Manufacturing Co., Spring Valley, Minn.
W. R. Graham Manufacturing Co., Greenville, Texas.

Books for Bee-Keepers and others.

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults, so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines,‡; foreign § The bee-books are all good.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well by the amount required for postage on each.

8	Bible, *good print*, neatly bound............	20
10	Bunyan's Pilgrim's Progress**............	30
20	Illustrated Pilgrim's Progress**............	75

This is a large book of 425 pages and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25c more.

6 | First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children cannot be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50 c. Two copies will be sold for 75 cents. Postage six cents each.

5	Harmony of the Gospels.....................	35
3	John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*................ ...	10
1	Gospel Hymns, consolidated Nos. 1,2, 3, and 4, words only, cloth, 10 c; paper.........	05
2	Same, board covers.......	20
5	Same, words and music, small type, board covers.......	45
10	Same, words and music, board covers	75
3	New Testament in pretty flexible covers...	05
5	New Testament, new version, paper covers.	10
5	Robinson Crusoe, paper cover...............	10
4	Stepping Heavenward**................	1
15	Story of the Bible**.........................	1 0

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

5	The Christian's Secret of a Happy Life**....	2
8	Same in cloth binding................	5
	"The Life of Trust," by Geo. Muller**.....	1 2
1	Ten Nights in a Bar-Room, T. S. Arthur*..	0
5	Tobacco Manual**.....	4

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy that reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

Postage]		[Price without postage
15	A B C of Bee Culture. Cloth.........	1 1
5	A Year Among the Bees, by C. C. Miller...	4
	Advanced Bee Culture, by W. Z. Hutchinson	5
3	Amateur Bee-keeper, by J. W. Rouse.......	2
14	Bees and Bee-keeping, by Frank Cheshire, England, Vol. I.§......................	2 3
21	Same, Vol. II.§ ....r	2 7
	or, $5.25 for the two, postpaid.	
	Bees and Honey, by T. G. Newman.........	1 0
10	Cook's New Manual. Cloth.................	9
5	Doolittle on Queen-Rearing.................	9
2	Dzierzon Theory	1
1	Foul Brood; Its Management and Cure; D. A. Jones	0
1	Honey as Food and Medicine............ .	0
10	Langstroth on the Hive and Honey-Bee‡..	1 2
15	Langstroth Revised by Ch. Dadant & Son..	1 2
10	Quinby's New Bee-Keeping.	1 4
	Thirty Years Among the Bees, by H. Alley	5
4	Success in Bee Culture, by James Heddon	4
	Handling Bees, by Langstroth. Revised by Dadant	0
	Bee-keeping for Profit, by Dr. G. L. Tinker	2
5	The Honey Bee, by Thos. William Cowan..	9
	British Bee-Keeper's Guide Book, by Thos. William Cowan, England§.....	4
3	Merrybanks and His Neighbor, by A.I. Root	1
4	Winter Problem in Bee-keeping, by Pierce	4

MISCELLANEOUS HAND-BOOKS.

3 | A B C of Potato Culture, ** New Edition.... 35

This is T. B. Terry's first and most masterly work. The book has had an enormous sale, and has been reprinted in foreign languages. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. It has 122 pages and 3 illustrations.

5 | A B C of Carp Culture, by Geo. Finley..... 35

5 | **A B C of Strawberry Culture**** 35

The above book by T. B. Terry, with some additional remarks by A. I. Root, is, at the present time, creating an enthusiasm and interest in strawberry culture never known before It is a book of 144 pages and 32 engravings, and it is fully up to the times.

5 | An Egg-Farm, Stoddard** 45
| Amateur Photographer's Hand-book**..... 70
| Barn Plans and Out-Buildings*... .... 1 50
| Canary Birds. Paper,.................... ... 50

2 | Celery for Profit, by T. Greiner**........... 25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once, without any assistance except from the book.

| Draining for Profit and Health, Warring.. 1 50
10 | Fuller's Grape Culturist **..... .... 1 40

| Farming For Boys*.... 75

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

7 | Farm, Gardening, and Seed-Growing**..... 90

This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages.

12 | **Gardening for Pleasure, Henderson***....... 1 85

While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 404 pages and 203 illustrations.

12 | Gardening for Profit, new edition**.... ... 1 85

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts.

| Gardening for Young and Old, Harris**.... 1 25

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

10 | Garden and Farm Topics, Henderson**.... 75
| Gray's School and Field Book of Botany... 1 80

5 | Gregory on Cabbages; paper*..... 25
5 | Gregory on Squashes; paper*................ 25
5 | Gregory on Onions; paper*.................. 25

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

15 How to Make the Garden Pay.**.......... 1 35

By T. Greiner. This is a new book, just out, and it gives the most explicit and full directions for gardening under glass of any book in the world Those who are interested in hot-beds, cold-frames, cold-greenhouses, hot-houses or glass structures of any kind for the growth of plants, can not afford to be without the book.

| Handbook for Lumbermen.................. 10
10 | Household Conveniences 1 40
2 | How to Propagate and Grow Fruit, Green* 15
2 | Injurious Insects, Cook.............. ... 25
10 | Irrigation for the Farm, Garden, and Orchard, Stewart*.......... .... 1 40

This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

5 | Manures; How to Make and How to Use them; in paper covers.................... 45
6 | The same in cloth covers..... 65

Covering the whole matter, and discussing every thing to be found on the farm, refuse from factories, mineral fertilizers from mines, etc. It is a complete summing-up of the whole matter. It is written by F. W. Sempers.

7 Market-gardening and Farm Notes, by Burnett Landreth 90

The Landreths are the pioneer seedsmen of America; and the book is worth fully as much as we might expect it to be. I think I received hints from it worth the price, before it had been in my hands fifteen minutes. It is exceedingly practical, and tells what has been done and what is BEING done, more than it discourses on theory.

3 | **Maple Sugar and the Sugar-bush****.......... 35

By Prof. A. J. Cook. This was written in the spring of 1887 at my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the latest and best method of managing to get the finest syrup and maple sugar, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts.

| Our Farming, by T. B. Terry**..... .... $2 00

In which he tells "how we have made a run-down farm bring both profit and pleasure."

This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming before the world at the present day. The price is $2 00 postpaid; or clubbed with GLEANINGS for 2.50. Those who are already subscribers to GLEANINGS may have it postpaid by sending us 1.50 more. We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, 10c less.

3 | Onions for Profit ** 45

Fully up to the times, and includes both the old onion culture and the new method The book is fully illustrated, and written with all the enthusiasm and interest that characterize its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

1 | Poultry for Pleasure and Profit**.......... 10
11 | Practical Floriculture, Henderson* 1 35
10 | Profits in Poultry*.... 90
2 | Practical Turkey-raising 10

By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.

4 | Peabody's Webster's Dictionary.......... ... 10

Over 30,000 words and 250 illustrations.

2 | Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character 15

This little book ought to be worth dollars instead of the few cents it costs to any one who has ever been troubled with these pests, and who has not? It is written in such a happy vein that every member of the family will read it clear through, just about as soon as they get hold of it. It contains a complete summing up of the best information the world can furnish.

1 | Silk and the Silkworm........ 10
10 | Small-Fruit Culturist, Fuller........ .... 1 40

10 | Success in Market-Gardening*... 90

This is a new book by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

| Ten Acres Enough......... .... 1 00
| The Silo and Ensilage, by Prof. Cook, new edition, fully illustrated 25
| Talks on Manures*.......... .... 1 75

This book, by Joseph Harris is, perhaps, the most comprehensive one we have on the subject, and the whole matter is considered by an able writer. It contains 366 pages.

2 | The Carpenter's Steel Square and its Uses. 15
10 | The New Agriculture; or, the Waters Led Captive........................ 75
2 | Treatise on the Horse and his Diseases..... 10
5 | Tile Drainage, by W. I. Chamberlain....... 35

Just out. Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in this book, one man will often do as much as two men without this knowledge. The book embraces every thing connected with the subject, and was written by the author while he was engaged in the work of digging the ditches and laying the tiles HIMSELF, for he has laid literally miles of tile on his own farm in Hudson, O.

5 | Tomato Culture............................... 35

In three parts. Part first—by J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second—By D Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general. This little book is interesting because it is one of the first rural books to come from our friends in the South. It tells of a great industry that has been steadily growing for some years past; namely, tomato-growing in the South to supply the Northern markets. The little book, which is fully illustrated, gives us some pleasant glimpses of the possibilities and probabilities of the future of Southern agriculture. Even though you do not grow tomatoes to any considerable extent, you will find the book brimful of suggestions of short cuts in agriculture and horticulture, and especially in the line of market-gardening.

3 | Winter Care of Horses and Cattle..... 35

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects of the Microscope**.......... 47

8 | What to Do and How to be Happy While Doing It, by A. I. Root........ 50

A. I. ROOT, MEDINA, O.

Imported Carniolans, bred in 1893, $5 each; home-bred tested, $2; untested, May, $1, bred from imported mothers. Foreign orders, $6, $3, and $2. Safe arrival at any postoffice in the world. Mrs. Frank Benton, Charlton Heights. Md.

CROSSMAN'S BEAUTIFUL GOLDEN QUEENS

Are bred from the very best 5-banded stock, and are guaranteed to give you satisfaction.

Untested, $1.00 each; one-half dozen, $5.00; $9.00 per dozen. Tested, $1.50. Select tested, $2.50 each. Send for Price List.

W. P. CROSSMAN,
BOX 141, DALLAS, TEX.
Please mention this paper.

Tar-Heel Apiaries, Goldsboro, N. C.

Abbott L. Swinson, Proprietor.

1894 After ten years' experience I breed only **American Albino Italians** and Golden Italians; 3 and 5 banded bees. Queens, $1.00 to $10.00; bees, $1.00 per lb.; nuclei, 75 cts. per L. frame. 200 bu. "Cook's" Long Staple Cotton Seed at $1.00 per bu., f. o. b. Lint is 1⅝ inches, and brings premium of 2 to 4 cents. 1894

For Sale. 50 colonies of bees, mostly Italians and hybrids; nearly all are in Simplicity and Dovetailed hives—3 in American A. Y. BALDWIN, De Kalb, Ill.

Eggs for Hatching, From choice stock, at hard-times prices. S. C. Black Minorcas, S. C. White Leghorns, and B. P. Rocks.
EUGENE MANNING, Jacksonville, Tompkins Co , N. Y.

ITALIAN QUEENS.

Both three and five banded. Tested, $1.50; three for $4.00. Extra select breeders, $2.00; three for $5.00. Untested, $1.00; three for $2.50; six for $5.00; twelve, for $8.00. Safe arrival guaranteed or money refunded. Orders booked now, and pay when you want queens.

C. F. BECKEY,
MANITOU BEACH, LEN. CO., MICH.
☞In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, FOUNDATION. Price List Free. A Full Line of SUPPLIES for the Bee-keeper.
GEO. RALL, Frenchville, Tremp. Co., Wis.

EGGS For Hatching. S. C. B. Leghorns, Silver Wyandottes, B. and W. Minorcas, P. Rocks, Langshans, $1.00 per 13; Y. Wyandottes, I. Games, Red Caps, S. S. Hamburgs—Eggs, $2.00 per 13. No circular. AUGUST GOETZE & SON.
3822 WOOD ST., WHEELING, W. VA.
Please mention this paper.

WE WILL PREPAY

Freight charges on orders for Root's polished sections, and 16 section white basswood shipping cases, at his prices, to be shipped from factory to points within 300 miles, in lots of 5000 and 200 or over respectively. Send for catalog.
B. WALKER, Evart, Mich.

GOLDEN QUEENS From Texas.

My bees can not be surpassed for business, beauty, and gentleness. Safe arrival and satisfaction guaranteed. Untested queens—March, April, and May—$1 each. *150* fine Tested Queens for early orders, $1.50 each. Order early. Send for price list.

J. D. GIVENS, Box 3, Lisbon, Tex.
☞In responding to this advertisement mention GLEANINGS

WARRANTED QUEENS.

Why buy *untested* queens and take your own risk of pure mating, when I warrant every one of my queens to be purely mated? Look over the ads. and see how few *dare* do this. Warranted Golden Italian queen, $1.00; six for $5.00, ready about May 1st. Safe arrival and satisfaction guaranteed.

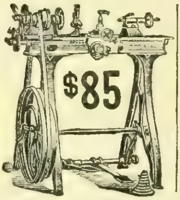
S. F. TREGO, Swedona, Illinois.

PERFECT cream sections, $2.25 per 1000.
POPLAR sections, sandpapered, $3.50 per 1000.
Every thing in the supply line at bottom prices. 30c per lb. allowed on wax, in exchange for supplies. Circular upon application. **I. J. Stringham,**
105 Park Place, N. Y.

For Sale for 1894. Italian bees and queens, cheap for cash. Address
OTTO KLEINOW, 118 MILITARY AVE., DETROIT, MICH.

BEES! BEES! BEES!

If you contemplate buying bees and queens the coming season, write to **LEININGER BROS.** for prices which will suit you. **FT. JENNINGS, O.**



"Star" Foot Lathe Swings 9x25 in.

Screw Cutting Automatic Cross Feed, etc.

LATHE

Scroll Saws, Circular Saws, Lathes Mortisers.

Catalogue Free of all our Machinery.

Seneca Falls Mfg. Co. 44 Water St., Seneca Falls, N.Y.
☞In responding to this advertisement mention GLEANINGS

DID YOU KNOW

That I have the LARGEST STOCK of **BEE-KEEPERS' SUPPLIES** IN NEW ENGLAND?

Consisting of Dovetailed, Simplicity, and other styles of Hives. My brand of XX white thin Foundation, and Polished one-piece Sections, are the nicest on the market.

A full line of every thing needed in the apiary at prices to suit the times.

BEES, QUEENS, and NUCLEUS COLONIES of my old reliable strain, at prices way down.

Send for 34th Annual Catalogue before you buy your stock, remembering the best is always the cheapest.

Address **W. W. CARY,**
4tf **COLRAIN, FRANKLIN CO., MASS.**
☞In responding to this advertisement mention GLEANINGS

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

BEES FOR SALE.

I will sell hybrid or black colonies of bees, in lots of (20) twenty at ($3.00) three dollars each, to be shipped about the 10th of May. Each colony will contain 8 combs with brood and honey. Address

T. E. McLEAN, THOMPSON'S STATION,
WILLIAMSON CO., TENN.

I Will Exchange

For your name and address, my pamphlet "How I Produce Comb Honey," and catalog of Chaff and Dovetailed hives, T Supers, Sections, Foundation, and every thing needed in the apiary. First-class goods, and prices reasonable.

Geo. E. Hilton,
Fremont, Mich.

BEES QUEENS

Smokers, Sections, Comb Foundation, And all Apiairan Supplies cheap. Send for FREE Catalogue. **E. T. FLANAGAN, Belleville, Ill**

Root's Goods at Root's Prices.

We have the best shipping-facilities in the Northwest. We can save time and freight by shipping direct on some 40 or more railroads, without change of cars, which saves handling, and goods are much less liable to be broken or smashed.

Root's 1893 No. 1 white sections, 4¼x4¼x7 to foot, 1⅞, and 1 15/16, at $2.50 per 1000. No. 1 cream, 4¼x¼x1⅞ and 1 15/16, $2.00 per 1000.

Write for price list and what you want.

H. G. Acklin, 1024 Mississippi St.,
St. Paul, Minn.

Northwestern Agent for A. I. Root's Bee-keepers' Supplies.

SPRAY
YOUR
FRUIT TREES
& VINES

Stahl's Double Acting Excelsior Spraying Outfits prevent Leaf Blight & Wormy Fruit. Insures a heavy yield of all Fruit and Vegetable crops. Thousands in use. Send 6 cts. for catalogue and full treatise on spraying. *Circulars free.*

WM. STAHL, Quincy, Ill.

☞In responding to this advertisement mention GLEANINGS.

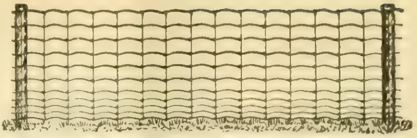
BEE SUPPLIES RETAIL AND WHOLESALE

Every thing used in the *Apiary.* Greatest variety and *largest* stock in the West. New catalog, 70 illustrated pages, free.

Discounts to Dealers.

E. KRETCHMER, Red Oak, Ia.

☞In responding to this advertisement mention GLEANINGS.



Governor Hoffman's Experience.

JEFFERSON, WIS., March 28, 1894.

The Page Woven Wire Fence Co., Adrian, Mich.:

GENTLEMEN:—About a year ago I procured from you a roll of your woven wire fence, with the intention of probing its merits. The fence was used for the enclosing of a yard containing a considerable number of cattle. It was thus put to a severe test. It gives me great pleasure to inform you that the fence gave the greatest possible satisfaction. I concluded that no other fence should ever be erected on Riverside Farm while I had the control of it.

Intending to repair an old barbed wire fence in a manner to give complete protection against the intrusion of hogs, I beg to inclose my order for several rolls of the fence woven for that special purpose.

I remain, gentlemen, with high regards, yours truly, FRANCIS A. HOFFMAN,
Agricultural Editor Germania, etc.

Quigley's Golden Italians

Are big yellow bees that are hardy, gentle, and good honey-gatherers. Warranted queens, April and May, $1.00 each. Safe arrival and satisfaction guaranteed. Every thing needed in the apiary, best quality, bottom prices, low freight. Price list free. ***E. F. Quigley, Unionville, Mo.***

TESTED ITALIAN QUEENS, $1.00 each; Select tested, $1.50; untested, 65 cts. Two-frame nucleus, with tested queen, $2.00; with untested queen, $1.50. Queens ready April 1.

Stewart & Cooper, Quebeck, Tenn.

Bee-keepers' Guide.

New edition, just out. This is conceded to be the fullest, most scientific, and one of the best of our American bee-books. Every bee-keeper should have one of the late editions. Price, by mail, $1.25. Liberal discount to the trade.

A. J. COOK, Claremont, Cal.

BEE SUPPLIES!

Send for free copy of **ILLUSTRATED CATALOGUE.** describing every thing useful to a **BEE-KEEPER.** Address

T. G. Newman, 147 So. Western Ave., **Chicago.**

Notice to Kansas Bee-keepers.

I keep in stock a full line of E. Kretchmer's make of Hives, Sections, and other supplies needed in the apiary, at very low prices. Also Italian bees and queens for sale. **A. W. SWAN, Centralia, Kan.**

World's Fair Medal

Awarded my ***Foundation.*** Send for ***free samples.*** Dealers, write for wholesale prices. Root's new ***Polished Sections*** and other goods at his prices. ***Free*** Illustrated Price List of every thing needed in the apiary.

Bell Branch, Mich. **M. H. Hunt.**

Cash for Beeswax!

Will pay 25c per lb. cash, or 28c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 32c per lb., or 33c for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio.

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Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange extra thin foundation, and fine extracted honey, in 60-lb. cans for bees by the pound, nucleus colonies, and queens.
R. C. AIKIN, Loveland, Colo.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange incubators, brooders, and eggs for hatching, of 14 varieties thoroughbred fowls, for first-class thoroughbred poultry.
Address ED. W. COLE, Kenton, O.

WANTED.—150 colonies of bees (L. frame) in exchange for Eureka mowers, Spring-tooth harrows, Steel-lever harrows, Buckeye binders, etc. This machinery is all new and in good shape.
EZRA BAER, Dixon, Lee Co., Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange Root's goods, at his prices, to be shipped from here or factory, for white comb honey (crop of '94 preferred) in quantity lots. See ad. in another column.
B. WALKER, Evart, Mich.

WANTED.—To exchange 200-egg incubator and brooder, perfect working condition; cost $40; four fox-hound pups, six months old, best breed in America, for gold watch or safety bicycle.
GEO. K. SCOTT, Turtle Lake, Barron Co., Wis.

WANTED.—To exchange a good 6-inch Vandervort fdn. mill for offers. JNO. NEBEL & SON,
High Hill, Mo.

WANTED.—To exchange one fine solid 14 K. gold watch, as good as new, used but little, Elgin movement, for one bedroom suite, of antique oak, massive style. Correspondence solicited. Furniture must be new. Watch cost $100.00. Reason for exchanging, I have two watches.
R. H. CAMPBELL, Madison, Morgan Co., Ga.

WANTED.—To exchange Singer sewing-machines or Root's supplies. Want honey, press, and type. THE MODEL STAMP WORKS, Shenandoah, Ia.

WANTED.—To exchange 1 treadle Novelty printing-press, chase 10x14, lot of type, rules, borders, etc., valued at $60.00 (sample of work on application), for registered Jersey heifer, section-boxes, Hallock potato-planter, or offers.
J. F. MICHAEL, German, Darke Co., O.

WANTED.—To exchange engine and boiler (1½ horse-power), Barnes saw with saws and cutter-heads, and 200-egg incubator, for any thing useful.
ROBERT B. GEDYE, La Salle, Ill.

WANTED.—Situation in apiary for the coming season. A. T. BALL, South Sebec, Maine.

WANTED.—Situation with bee-keeper or market-gardener, by young man, unmarried, with some experience in bee-keeping. References given.
WM. K. BRYCE, 310 S. Dewitt St., W. Bay City, Mich.

WANTED.—25 untested Italian queens and 1 lb. of bees with each queen, to be shipped May 15. What can you furnish them for? Write quick to
GEO. E. HILTON, Fremont, Mich.

SECTIONS CHEAP!

Until sold, we will sell the sections listed below in quantities of 500 or more at $1.50 per thousand for creams, and $1.00 per thousand for No. 2. All 4¼ x 4¼ sections, open two sides.

41,000	2 inch	cream.	37,000	2 inch	No. 2.
47,000	1¾	" "	91,000	1$\frac{15}{16}$	" "
116,000	1⅞	" "	20,000	1⅞	" "
134,000	7 to ft.	"	87,000	1$\frac{13}{16}$	" "

253,000 7 to ft. No. 2.

PAGE & KEITH, NEW LONDON, WIS.

☞In responding to this advertisement mention GLEANINGS.

WALTER S. POUDER,
162 Mass. Ave. Indianapolis, Ind.
SUPPLIES Standard Goods—Popular Prices—Catalogue Free.
"BUSY BEES"
A book telling how to manage them—10 cts. in stamps; or free to those sending names of 5 bee-keepers

NOW IS YOUR CHANCE.

To buy *cheap*. Bee-keepers' Supplies, hives, sections, fdn., etc. Write for price list. ROOT'S GOODS.
JOHN NEBEL & SON, High Hill, Mo.

Golden Queens from Tennessee.

Our stock is better than ever before. We will rear only the Golden Italians this season. Have a few 3 banded tested that we will sell cheap. Golden tested, $1.50; select tested, $2.50; extra select tested, $4.00; 3-banded tested, $1.00. Untested, $1.00.
STEWART BROS., Sparta, Tenn.

BEE-KEEPERS' Supplies of all kinds cheap for cash.
NOVELTY CO., ROCK FALLS, ILL.

Aluminum Bicycles,

Bright as silver, light as wood, three times stronger than steel. Send for catalog to Robert B Gedye, La Salle, Ill. Bargains in second-hand and shop-worn wheels.

Bicycles. High-grade wheels, direct from the factory, at cut prices. Terms easy. Write *EZRA G. SMITH, MANCHESTER, N. Y.*

BEES FOR SALE.

Italian, $4.00. Hybrids, $3.50. All in 8-frame Langstroth hives. *WILLIAM IDEN, ETNA GREEN, INDIANA.*

WE WILL PREPAY

Freight charges on orders for Root's polished sections, and 16-section white basswood shipping-cases, at his prices, to be shipped from factory to points within 300 miles, in lots of 5000 and 200 or over respectively. Send for catalog.
B. WALKER, Evart, Mich.

BEES! BEES! BEES!

If you contemplate buying bees and queens the coming season, write to LEININGER BROS. for prices which will suit you. FT. JENNINGS, O.

TESTED Italian queens, $1.00; untested, 65 cts.; select tested, $1.50. C. H. STEWART, Sparta, Tenn.

HONEY COLUMN.

CITY MARKETS.

ST. LOUIS.—*Honey.*—The honey trade is apparently dead. Very few inquiries, and fewer sales. We quote comb at 10; extracted, in barrels, 3@3½. Prime beeswax, 27; good demand for the latter.

D. G. TUTT GROCER CO.,
April 18. St. Louis, Mo.

SAN FRANCISCO.—*Honey.*—Honey remains very firm and is advancing, because the coming crop, in consequence of the extremely dry season in Southern California, will no doubt be a small one. We quote: Extracted, white, 5¼@5½; light amber, 5. One-lb. frame comb, 10@12. Beeswax, 25.

SCHACHT, LEMCKE & STEINER,
April 11. San Francisco, Cal.

ALBANY.—*Honey.*—We are expecting orders in a few days that will close out what little comb honey we still have on hand, and our stock of extracted is well reduced. We quote: Comb. 10@12; extracted, 5@7. Beeswax scarce, and sells at 26@27.

CHAS. MCCULLOCH & CO.,
April 14. 393, 395, 397 Broadway, Albany, N. Y.

KANSAS CITY.—*Honey.*—The demand for comb honey is fair; extracted is slow sale. We quote: No. 1 white 1-lb. comb, 14@15; No. 2, 11@12; No. 1 amber, 12@13; No. 2, 10@11; extracted, white, 6½@7; amber, 4½@5. Beeswax, 22@25.

CLEMONS, MASON & CO.,
April 19. Kansas City, Mo.

KANSAS CITY.—*Honey.*—We quote you to-day 1-lb. comb, white, 12½; No. 2, 10; No. 1 amber, 10; extracted, 5@7. Beeswax, 20@22.

HAMBLIN & BEARSS,
April 19. Kansas City, Mo.

BOSTON.—*Honey.*—We quote you our market on comb honey at 12@14. Demand fair, supply fair. Extracted, 5@7. Demand and supply fair. Beeswax, 25c; demand fair, supply light.

E. E. BLAKE & CO.,
Successors to Blake & Ripley,
April 18. Boston, Mass.

CLEVELAND.—*Honey.*—Demand on honey is somewhat slow. Prices remain unchanged since last report. Beeswax, fair demand.

WILLIAMS BROS.,
April 17. 80 & 82 Broadway, Cleveland, O.

CINCINNATI.—*Honey.*—Demand exceedingly slow for all kinds of honey. We quote 12@15 for best white comb; 4@8 for extracted. Arrivals and offerings by far exceed the demand. There is a good demand for beeswax at 22@25 for good to choice yellow. We solicit shipments.

CHAS. F. MUTH & SON,
April 19. Cincinnati, Ohio.

DETROIT.—*Honey.*—Honey is selling slowly at 13@14 for best comb; 11@12 for dark and candied lots. Supply getting low. Extracted, 7@8; few sales. Beeswax, 25@26; fair demand.

M. H. HUNT,
April 19. Bell Branch, Mich.

BUFFALO.—*Honey.*—The honey market is cleaning up, still there remains a fair quantity on hand. Fancy, mostly 13@14; choice, 11@12; common grades, 9@10. Beeswax, 25@28. BATTERSON & CO.,
April 18. Buffalo, N. Y.

CHICAGO.—*Honey.*—Choice white comb honey in 1-lb. sections finds ready sale at 15c; dark and off grades are, as formerly, difficult to dispose of. There are really no fine lots of comb honey on the market. Extracted is very dull at 4@6. Beeswax, 25.

R. A. BURNETT & CO.,
April 18. 161 So. Water St., Chicago, Ill.

MILWAUKEE.—*Honey.*—This market does not reveal any new features regarding honey. The demand is only enough to say there is a market, and the supply is gradually going out of sight. Values are quotable for 1-lb. white at 13@14, and any thing below choice quality goes, as to customer, at 10@12½. Extracted, 7@8 for white, in kegs. Beeswax, 20@23.

A. V. BISHOP & CO.,
April 17. Milwaukee, Wis.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

Gray Carniolans and
5-banded Golden Italians.

For description and prices see our adv t on p 295, April 1st GLEANINGS. We breed *business* queens at reasonable prices. Send us your orders to be booked now, and the cash when you want the queens. Friends, give us a trial order, and we *guarantee* to give you satisfaction. A full description and price list free. F. A. LOCKHART & CO , Lake George, N. Y.

When can you furnish untested Carniolan queens? The two colonies bred from the queens bought of you last year are worth six of my golden Italians. C. H. AUSTIN.
Allen Mich , April 18 1894.

My Carniolans have wintered splendidly. They are far ahead of my Italians in every way. I shall go out of the Italians altogether. JUDSON DE WITT.
Forestville, Ont., Canada, April 17, 1894.

Attention! Bees for Sale. Full colonies and nuclei. Good stock; Langstroth frames. Write for prices. ***H. Lathrop,*** Browntown, Green Co., Wis.

Golden Italian Queens.

Untested queens ready to mail at 75c each; per ½ dozen, $4.00. Also from imported stock at same price. ***W. A. COMPTON, LYNNVILLE, TENN.***

Buff Leghorns, Prize winners, score 94, $2.00 for 15 eggs; also six other leading varieties. **B. F. Stover, Roscoe, O.**

40 Two-bushel Sacks of
PURE FREEMAN SEED POTATOES,
No sprouts on them, at $3.50 per sack. 10 sacks of small, $2.00 per sack. Send P. O. order to Brandon, Ia. **H. O. McElhany.**

LONG DISTANCE QUEENS. Tested Italian queens, $1.25; to Australia and the Pacific Islands, $1.50. BEST shipping-point for queens on Pacific coast. ***W. A. PRYAL,***
eoi North Temescal, near San Francisco, Cal.

CROSSMAN'S BEAUTIFUL GOLDEN QUEENS

Are bred from the very best 5-banded stock, and are guaranteed to give you satisfaction.

Untested, $1.00 each; one-half dozen, $5.00; $9.00 per dozen. Tested, $1.50. Select tested, $2.50 each. Send for Price List.

W. P. CROSSMAN,
BOX 141, DALLAS, TEX.

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BEES, QUEENS, and NUCLEUS COLONIES of my old reliable strain, at prices way down.

Send for 34th Annual Catalogue before you buy your stock, remembering the best is always the cheapest.

Address ***W. W. CARY,***
4tf ***COLRAIN, FRANKLIN CO., MASS.***

Beautiful Native Flowers *and Plants of Florida.* Cheapest in the South, and guarantee. Send stamp for price list. MISS LIZZIE ADAM, Green Cove Spring Fla.
☞In responding to this advertisement mention GLEANINGS.

TESTED

Queens are usually sold for $2.00. I will explain why I wish to sell a few at less than that. As most of my readers know, I requeen my apiary each spring with young

QUEENS

From the South. This is done to do away with swarming. If done early enough it is usually successful. It will be seen that the queens displaced by these young queens are never more than a year old; in fact, they are fine tested Italian queens, *right in their prime;* yet, in order that they may move off quickly, and thus make room for the untested queens, they will be sold for only

$1.00.

Or I will send the *Review* for 1894 and one of these queens for only $1.75. For $2.00 I will send the *Review*, the queen, and the book "Advanced Bee Culture." If any prefer the young laying queens from the South, they can have them instead of the tested queens, at the same price. A discount given on large orders for untested queens. Say how many are wanted, and a price will be made.

W. Z. HUTCHINSON, Flint, Mich.

Sections, Bee-Hives, and other Bee-Keepers' Appliances at Bed-rock Prices.

Best of Goods at Lowest Prices.

Write for free, illustrated catalogue and Price List.

G. B. Lewis Co., Watertown, Wis.

LAWS' Italians surely take the ***lead.*** They are now in every State in the ***Union,*** and in several ***foreign countries.*** Nearly 3000 queens sold, and not a dissatisfied customer; if there is, let him speak. Queens ***yellow all over.*** Fine breeders always on hand; 4 and 5 band, $2.00; straight 5 band, $3.00! Untested, each, $1.00; 6 for $4.50. Satisfaction. Reference, A. I Root. ***W. H. LAWS,***
Lavaca, Seb. Co., Ark.

AT THE WORLD'S FAIR **THE PORTER BEE ESCAPE** received the **ONLY** award given an escape. Practical bee-keepers everywhere use and recommend it as a great labor-saving implement, and as the best. Circular and testimonials free. Prices:—Each, postpaid, with directions, 20 cts.; per doz., $2.25. *and your money back, if not satisfied.* Order from your dealer, or if more convenient from the manufacturers, **R. & E. C. PORTER, LEWISTOWN, ILL.**

Canadian Bee Journal.

Monthly. Sample free. One dollar per year; 25 cents for four months' trial trip. Stamps taken.

Canadian Bee Journal,
Brantford, Canada.

FOR BEGINNERS

PROFITABLE BEE-KEEPING.

By Mrs. Jennie Atchley, of Texas.

In the first number of the AMERICAN BEE JOURNAL for May, 1894, Mrs. Jennie Atchley commences her **School in Profitable Bee-keeping.** She begins at the very bottom, and freely gives the results of her 20 years' experience in **Successful Honey Production and Queen-rearing.** If you want to learn nearly every thing about bees, **now is the chance.** Subscribe for the "Bee Journal" for a year, and read what Mrs. Atchley has to say in her department—"In Sunny Southland." Her "School" will continue indefinitely. Tuition free.

THE BEE JOURNAL was established in 1861, has **32 pages every week,** and costs only $1.00 a year. It contains the writings of the best and most successful bee-keepers in America. Sample copy free. Also, 200-PAGE BOOK (Newman's "Bees and Honey") FREE to each **New Subscriber** for a year. Better begin with the 1st number in May. Hurry up!

GEORGE W. YORK & CO., 56 FIFTH AVE., CHICAGO., ILL.

Manum's

Leather-Colored Italian Queens

Are in the lead the world over. Tested queens one dollar each. Descriptive catalogues free to all applicants.

Also wood screws $\frac{3}{16}$ longer than formerly; otherwise the same. Price $9.00 per 1000 by express; $1.00 per 100 by mail. Taps, $1.15 each.

A. E. Manum,
Bristol, = = = = Vermont.

Have You seen our Catalog

"Everything for Gardeners"?

It is unlike other Catalogs. Straightforward and truthful descriptions by a practical market-gardener, of the best in **SEEDS.** Tells about growing **$2000 worth of Prize-taker Onions** on an acre, and how to grow **$3000 worth of Celery** on an acre. We sell **Vegetable Plants, Timbrell** and other leading **Strawberries** and **Small Fruits. Trees** and **Supplies** for gardeners. **Danvers Yellow Globe Onion Seed at $1 per lb. True Prize-taker, $2.25.** We send a pkt. of this and of a **new Early Tomato,** smooth, good shape and size, and the earliest, also a pkt. of new **Sensation Lettuce,** with Catalog and several useful leaflets, for only **10c.** Send now.
CHRISTIAN WECKESSER, Niagara Falls, N. Y.

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds
W. Atlee Burpee & Co., Philadelphia, Pa

PERFECT cream sections, $2.25 per 1000.
POPLAR sections, sandpapered, $3.50 per 1000.
Every thing in the supply line at bottom prices. 30c per lb. allowed on wax, in exchange for supplies. Circular upon application. **I. J. Stringham,**
105 Park Place N. Y.

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

Seeds Free!
ALSO
Freeman Potatoes.

YOU CAN HAVE SUCCESS

in Bee Culture a Whole Year; 10 strong eyes of Freeman Potatoes (pure), and 10 packets of flower and vegetable seeds, for **40 CENTS,** silver. This offer is made to boom our circulation.
BURTON L. SAGE, Highwood, Conn.

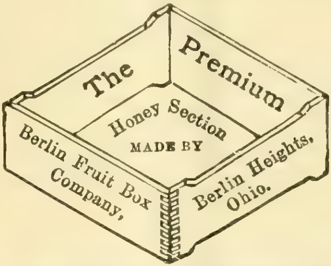
☞In responding to this advertisement mention GLEANINGS.

EGGS FOR HATCHING Buff Leghorns, $1.50 for 15; Buff Wyandottes, $2.00 for 13; White Plymouth Rocks, $1.50 for 15; White Pekin Ducks, $1.00 for 9.
All A No. 1 stock. **J. S. WARNER, Medina. O.**

Daughters of one of *Doolittle's very best* golden five-banded breeders, mated to the very choicest drones from *Jennie Atchley's* 5-banded strain, thereby securing a direct cross with the best 5 banded stock obtainable. My aim is to rear nothing but the best, regardless of cost. Untested, 75c; ½ dozen, $4.25; dozen, $8.00. Safe delivery and satisfaction. Money-order office, Monongah. P. O. address, Worthington, W. Va. Queens ready May 25. ***L. H. Robey.***

Eggs Brown and White Leghorn, $1.25. P. Rock, Bl'k Minorca, $1.50. Bl'k Langshan, L't Brahma, Pit Game, Buff Cochin, $2.00 per 13. Fowls for sale. Circular free.
Address **GEER BROS., St. Marys, Mo.,**
or, **H. B. GEER, Nashville, Tenn.**

READY TO MAIL. TESTED ITALIAN **QUEENS** for $1.25. Untested, $1.00. Will be ready in April. Safe arrival guaranteed. Drones and Bees cheap.
J. N. COLWICK, Norse, Bosque Co., Texas.



Send for our new price list of Bee supplies and Fruit packages. A liberal discount allowed on winter orders. Address
BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.
1-10d

☞In responding to this advertisement mention GLEANINGS.

Automatic Comb Foundation Mills. **Made by W. C. Pelham, Maysville, = Ky.**

BBB'S!

If you keep *BEES,* subscribe for the **Progressive Bee-keeper,** a journal devoted to Bees, Honey, and kindred industries. ***50 cts. per year.*** Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address
LEAHY MFG. CO., HIGGINSVILLE, MO.

☞In responding to this advertisement mention GLEANINGS.

GEO. W. HUFSTEDLER,

Breeder of 5-Banded Italian Bees and Queens.
Untested, 75 cts. Tested, $1.00 each.
CLARKSVILLE, RED RIVER CO., TEXAS.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,
12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis.

THE BEST

is what I mean to give my patrons. Drones from selected queens. Breeders are carefully selected from the best. Personal attention and assiduous care given to rearing queens that they may be of the highest type.

Untested, $1.00; after May, 75c; March and April, 6 for $4.75; dozen for $8.50. May and June, 6 for $4.00; dozen, $7.50. Later, 6 for $3.50; dozen, $6.50. Tested, 3-banded, $1.25; 3 to 5 banded, $1.50 to $4.00. Send for circular for particulars. Make money orders payable here.

J. B. CASE, Port Orange, Vol. Co., Fla.

☞In responding to this advertisement mention GLEANINGS.

Good! Good!

Those wishing the finest and best business bees, both for pleasure and profit, should know that Jennie Atchley is headquarters for such queens. I breed both the 3 and 5 banded strains, at the following prices: Untested (March, April, and May), $1.00 each; $5.00 for 6, or $9.00 per dozen. June till October, 75 cts. each; $4.25 for 6, or $8.00 per dozen. I breed my queens in separate yards, and I have as fine Italian bees as there are anywhere. Nuclei and full colonies. I have one straight merchandise rate on bees by express—lowest in U. S. Fine breeders always on hand; 3-banded, $5.00; for straight 5-banded breeders, apply by letter. Also bees by the pound. I guarantee *all* my queens to be good and serviceable, and my fine faultless breeders unexcelled in the world. Safe arrival and satisfaction.

I also have a carload of A. I. Root's Dovetailed hives and Bee-supplies to accommodate my Southern customers. Dadant's foundation and Bingham smokers. Send for catalogue.

JENNIE ATCHLEY, Beeville, Bee Co., Texas.

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my *Golden Italians.* They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. *Sections, $2. per M.* Dovetailed hives way down.

CHAS. D. DUVALL, Spencerville, Md.

Sections Cheap.

We have on hand the following stock of *choice white* 4-piece dovetailed sections, which we offer at $1.00 per thousand:

75000 4¼x2. open top and bottom.
25000 4¼x1⅞, " "
4000 4¼x1$\frac{13}{16}$, " "
4000 4¼x1$\frac{15}{16}$, " "

G. B. LEWIS CO., Watertown, Wis.

Do Not Order

Until you have written us for prices on the "*Boss*" *One-Piece Section.*

PATENTED, JUNE 28 1881.

Also D. T. Hives, Shipping-crates, and other supplies.

We have just completed a large addition to our factory, which doubles our floor-room, and therefore we are in better shape than ever to fill orders on short notice. Write for price list.

J. FORNCROOK & CO.,
Watertown, Wis., Jan. 1, 1894. 1-3-5tfd

Golden Wyandottes.

No better birds in America. Cockerel, $5.00. Trio, $7.00. Eggs, $2.00 per setting.
E. D. Keeney, Arcade, N. Y.

GOLDEN ITALIANS.

If you want bees that are large, beautiful, very gentle, and great honey-gatherers, try my Golden Italians. They are pronounced very fine by W. Z. Hutchinson and many others. Satisfaction guaranteed. One untested queen, 80 cts.; three for $2.00. One warranted queen, $1.00; three for $2.50. Tested queens, $1.50 each. Selected tested queens, $2.00 each.

C. M. HICKS, Hicksville, Wash. Co., Md.

☞In responding to this advertisement mention GLEANINGS.

The Triumph Incubator,

Manufactured by Ed. W. Cole, Kenton, O., is the cheapest and best. Eggs for hatching, from stock which won nearly 300 premiums the past year.
Send for Description and prices.

Given Brood Foundation,

About five 16½x8½ sheets to the pound, in 10-lb. lots, at 40 cts. per pound.
H. W. FUNK, Normal, Ill.

FREE! My price list of pure Italian bees and queens, and white and brown ferrets. Address
N. A. KNAPP,
Rochester, Lorain Co., O.

BEE-MEN, Get free Price List of Apiarian Supplies.
F. N. JOHNSON, Knoxville, Ill.

BIG DISCOUNT on Foundation and Sections. Thin foundation, 50c per lb.; brood, 40c. No. 1 sections, $2.75 per M. Every thing cheap. Price list free.
7-17eoi *E. H. TRUMPER, Bankers, Mich.*

Colorado Cactus, Known as "*Hen and Chickens;*" red, waxy blossoms. One by mail, postpaid, 25c, or a group of 5 to 7 for $1.00, by express. Grows in any climate. Beautiful ornament. Stamps taken. Address
R. K. & J. C. FRISBEE, 172 W. Maple St., Denver, Col.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**
1-23a Ottumwa, Ia. South side.

VANDERVORT
COMB-FOUNDATION MILLS.

Send for samples and reduced price list.
1tfd **JNO. VANDERVORT, Laceyville, Pa.**

SIX LEADING VARIETIES OF POULTRY. **EGGS FOR HATCHING.**
Orders booked now. Send for descriptive card.
J. S. Mason, Medina, Ohio.

GOLDEN QUEENS
From Texas.

My bees can not be surpassed for business, beauty, and gentleness. Safe arrival and satisfaction guaranteed. Untested queens March, April, and May—$1 each. *150* fine Tested Queens for early orders, $1.50 each. Order early. Send for price list.

J. D. GIVENS, Box 3, Lisbon, Tex.

☞In responding to this advertisement mention GLEANINGS.

WARRANTED QUEENS.

Why buy *untested* queens and take your own risk of pure mating, when I warrant every one of my queens to be purely mated? Look over the ads. and see how few *dare* do this. Warranted Golden Italian queen, $1.00; six for $5.00, ready about May 1st. Safe arrival and satisfaction guaranteed.

S. F. TREGO, Swedona, Illinois.

☞In responding to this advertisement mention GLEANINGS.

GLEANINGS IN BEE CULTURE

A JOURNAL
DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS

ILLUSTRATED
SEMI-MONTHLY
PUBLISHED BY A. I. ROOT
$1.00 PER YEAR
MEDINA OHIO

Vol. XXII. MAY 1, 1894. No. 9.

STRAY STRAWS
FROM DR. C. C. MILLER.

I HOPE to get bees out of cellar April 18.

APRIL *Review* has a nice picture of the editor inside a veil.

LETTUCE is one of the best things for fall sowing, Bro. Root.

VASELINE, I think, is used in England more than elsewhere. [If a good thing there, why not here also?—ED.]

THE *Review* says I made a failure with sweet clover. Yes, only because I couldn't get a stand. I think that can be remedied.

"EVIL COMMUNICATIONS corrupt good manners." Who would have thought that, when Prof. Cook went among those extracted-honey men, he'd become one of them?

EXPERIMENT STATIONS, H. W. Scott suggests in *A. B. J.*, should communicate freely with each other, each one being fully informed as to what the others are doing. Why not?

APICULTURE seems to grow in importance in the eyes of agricultural journals. *The Farm and Stock Ledger*, a new paper, devotes nearly one-fourth of its reading space to bee-keepers.

C. THEILMAN, in *A. B. J.*, reports his bees in cellar all right at 36°, but they have unusually well-ripened stores. He thinks it bad to have them 45° or higher the first part of the winter.

A PERCOLATOR is my latest acquisition. I'll tell you how it works, next time. [Yes, yes; we are all anxious. We shall not have time to try one till fall, so should like to know a little in advance.—ED.]

SPECULATIVE FEEDING is much spoken of by Germans, and seems valued. I'm not sure just what it is—perhaps a compromise between giving a big lot all at once, and the scanty supply of stimulative feeding.

GRAVENHORST relates that part of his colonies were taken at time of rape bloom to a large domain and returned after, free of expense, the owner getting double crop from the rape by the work of the bees.

J. A. NASH thinks the vanilla-flavored honey is from sweet clover. Possibly; but I've had samples of so many different things as sweet clover that I'm doubtful whether any one knows what sweet-clover honey is.

THAT ECHO on p. 327. It may be true that honey gets its aroma from fresh-bulit comb, but I can't swallow it, Rambler, unless you give us something to help make it go down. Is new white comb as fragrant as wax from black combs?

DR. J. P. H. BROWN, speaking in *A. B. J.* of the big freeze that went all over the country, says, "It is the *most complete vegetable-kill* that ever I experienced in the South." The effect on southern bees has been somewhat disastrous.

THAT RULE that friend Schaeffle gives, p. 325, that queenless bees bring in no pollen, is a very old one, but I think it has been laid aside for some time as untrue. Hasn't a queenless hive an unusual supply of pollen? But I doubt whether they bring in as big loads.

NO WONDER Rambler's nose looks so long after playing Eugenia the slip when she thought he was going on the cars with her. But fate is on his track. In all his rambles, the fear will always haunt him that Eugenia will turn up in some unexpected place.

DR. KARL RITTER, a Pole, caged 132 bees that had lost their stings. After 48 hours 80 were still living, and flew away as lively as ever when freed. But bees are slow to show the effect of injuries. Cut one in two, and it doesn't seem to hurt it for a long time.

THE SECRET of the control of fertilization of queens, according to a writer in *A. B. J.*, is ready to be made public whenever a liberal reward is pledged, as the secret is now positively known. May be so; but then, it has been positively known so many times before.

DOOLITTLE, p. 329, doubts a wintered colony having no pollen in spring. I think I knew just one exception about 30 years ago. A colony in early spring was eggless and broodless when others had brood, and I could find no pollen present. I gave pollen, and all was lovely.

M. M. Baldridge deserves a vote of thanks for defending father Langstroth against unkind insinuations in *American Bee-keeper*. He squarely denies Robinson's statement that Mahan imported first Italians. [Yes, and Baldridge confirms what *we* said on page 941, Dec. 15th last.—Ed.]

And now I'm told, in *Progressive*, that a foundation-press is not a press if the wax is very warm. That won't do, Observer. If you put thin pomace in a cider-press, is it a mold? But I own up there are no such presses in this country (there's one on the way), and I was all off about the Given press.

A new way of having extracting-combs is reported in *Illus. Bienenzeitung*. Nail a sheet of tin on one side of your frame, then put in foundation close against the tin. Then you've only one side of the comb to extract. [But on a thousand such combs, wouldn't the tin be rather expensive? and how about so much metal in the super?—Ed.]

In America there are more than twenty societies, with a million of capital each, which they employ in covering a large part of American territory with apiaries. Each farm has its apiary, not only for the honey, but principally for the fecundation of flowers.—*From a speech in Elsass-Lothringscher Bienen-Zuechter.* Go from home to hear the news.

Hutchinson agrees with Dayton, that cleats are better than hand-holes in hives. Sensible. [The trouble with hand-holes heretofore, they haven't been made deep enough and long enough. We *now* make them ¾ inch deep, and long enough so that all the fingers can get a good grip. Of the old hand-holes, only one finger could get a good fair hold.—Ed.]

There you go again on p. 331. Won't give us Given foundation because it isn't "pleasing to the eye." What I want is something "pleasing to the bee." "That nice clear transparent effect" comes from a hard polished surface, doesn't it? and that's just what we don't want. [No, that clear transparent effect doesn't come necessarily "from a hard polished surface." See editorials.—Ed.]

I'm glad to learn that the V edge on end-bars is not sharp, but $\frac{1}{16}$ wide. How would it do to make it still wider, say about ⅜? ["There you go again." This sounds like your suggestion that, if an eight-frame hive is better than a ten-frame, then a six-frame is better than an eight. As Mr. Taylor says in this issue in reply to this, there is a Scylla and Charybdis; so we say there is here regarding the bluntness of this V edge. In Trade Notes we explain again more fully why this V edge is preferred by us and by friend Hoffman.—Ed.]

GENERAL CORRESPONDENCE

Our Symposium on Large vs. Small Hives.

R. L. Taylor on One Side of the Discussion, and Hatch, Dadant, and Seeley on the Other, with Dr. Miller on the Fence.*

DR. MILLER'S ARGUMENTS REVIEWED; SOME OF THE ELEMENTS OF UNCERTAINTY.

By R. L. Taylor.

Dear Bro. Miller:—I note that, in the last number of Gleanings, you make a reply to my letter to you of Feb. 1 upon the above topic; and inasmuch as I have become interested in what you say, and in the way you say it, and as the editor seems to expect me to say something in response to your argument, I venture to undertake to make some further suggestions which, it seems to me, should have weight in the consideration of the questions involved.

In relation to the experiment you propose for the purpose of testing the comparative advantages of the two kinds of hives, you see some of the difficulties, but I fear there are many others. Taking a colony from an eight-frame hive and putting it into a ten-frame hive would not do, because one which had been in a ten-frame hive for a year might be stronger, which would, perhaps, be an advantage, but more likely a disadvantage. The difficulty would be hardly less if one had plenty of each kind of hive containing colonies which had occupied them for years; for in selecting the colonies for the experiment there would be no really satisfactory standard to be applied in making the selections. I have just been selecting colonies for some other experiments, and I find that, with care, by examining when closely clustered I can pick out pairs that appeared to be twins in all material points; and then by dividing each of a sufficient number of pairs so as to form two lots, I could make the two lots practically about alike; but if I were to undertake to compare a colony in a two-story Heddon hive with one in an eight-frame hive, or one in a one-story Heddon, I should be lost—the result would be no better than a rough guess. So if I were set to select colonies in eight and ten frame hives for comparative experiment I should not know how to proceed. There would be no common standard that could be applied in making the selection. It would not be an attempt to get colonies of equal strength, but it would be an attempt to settle the average relative normal strength of the two classes, and then to select, from each, colonies having the same proportional ratio to each average. So far no plan of procedure has been suggested to me that seems to give promise of results that would have any binding force unless it be the keeping of an equal number of each class together under the same treatment for a series of years; and owing to the unstable footing which apiculture has as yet secured at our experiment stations, such a plan would have small chance of success unless it were acted upon on his own account by some bee-keeper who, like yourself, still has faith in the virtues of the ten-frame hive.

---

*We didn't know exactly where to put the Doctor, so we have put "him on the fence." If he doesn't like it he can get off.—Ed.

So the question between the two hives is a very complicated one, and is not simply one between what the bees say on the one hand and theory on the other. On each hand are both facts and theory. In each case the bees say something; and in each, what they say must be supplemented by a vigorous excercise of the reasoning faculty, or no sound conclusion can be reached. So I affirm that we do know something about it now. The bees have spoken—not, indeed, to the main question directly, for, as has been seen, that is too complicated to admit of a categorical answer unless we first put them in a position to give such a one by making extensive preparation for it, but to detached points that are material to the general issue, and decisive of it. But, of course, we must be careful of our process of reasoning.

You say, "I beg you will believe . . . . . —and I am sure you will take my word for it—that I am not saying a word for the sake of mere argument." Of course, I take your word for it; but I can not help seeing that, through the deceitfulness of language, I suppose, you have permitted your pen to say what is more unfair and more dangerous than talking for the sake of mere argument. What sort of tangleleg does your pen (or is it your typewriter?) imbibe that could have made it charge me with the statement that "we'll get all the bees we want by June 15th in an eight-frame hive"? What I did say was, "We want all the bees we can induce the colony to rear" up to that point of time. Your pen also puts the correct statement alongside the false one, so that it also practically charges me with inconsistency or want of intelligence.

Then what could have possessed your typewriter to record this: One "might ask whether the bees had ever stated in a positive manner that a lot of brood late in the harvest was a damage"? That is worthy of an adept at party-platform construction! What a blessed state of unanimity it is calculated to produce! for, of course, a lot of brood then would be no damage but an advantage! Whether we favor a five, eight, ten, or twelve frame hive, we would all agree in wanting a lot of brood then. But one might ask, "How big a lot?" and the strife would be renewed.

I feel pretty sure that the soundest argument would have little effect in solving the question so far as you are concerned if you are habitually willing to use such an ultra-diplomatic expression as a shield; and I am just as sure you would not expect me to be satisfied with such an elastic argument.

Now, I admit that here I feel the ground trembling under my feet, for I understand that you are editing a dictionary of apicultural terms, and I have noticed recently on several occasions that you have shown an inclination to "fix" the meaning of words to suit your own ideas without entertaining much respect for usage, so I am in doubt whether "lot" will not turn up as an apicultural term with some new signification, and I nightly dream of the pit preparing for him who is so foolhardy as to attempt an argument with the dictionary man.

Of course, I take your word for it when you affirm that you say nothing for mere argument; but I feel a mighty strain when I read the place where, in response to the reason I give for my statement that more bees will be produced early in the eight-frame hive, viz., that there is less space to be kept warm, you say: "If that counts for any thing, then a six-frame hive is still better." Better for what, pray? If you mean better for rearing brood early, I assent as a matter of course; but what significance has that fact in this argument? If you mean better for comb honey, I as certainly dissent. It looks a little as though you meant to get this admission from me, and then turn on me, and, by the use of the same kind of logic, insist that, since I admit that an eight-frame hive is better for comb honey than a six-frame hive, I am bound by an analogous course of reasoning to admit that a ten-frame hive is better for that purpose than an eight-frame hive. But, don't do that. We must admit that there is a Scylla as well as a Charybdis to be shunned. A hive may be too large as well as too small.

Once more: In the paragraph wherein you speak in derogation of theories, it seems to me you confound two ideas to the detriment of clear conceptions of truth. You place the theory of parthenogenesis and the theory of the eight-frame hive on a level with the theory of last year's non-swarmer and last year's hiver. You may well call the latter pretty theories which the bees refuse to accept; for the theories, though fine, we can clearly see, do not provide for all the conditions as they exist in our practical apiaries; they are not accepted by practical intelligent bee-keepers; indeed, such men clearly see, without the trouble of a test, that they could not be successfully used; but because such theories are and will be promulgated, furnishes no reason for including the former in the same condemnation, for they are supported by sound reason; they have been subject to the scrutiny of practical men for many years, and the fraternity accept them. *Vox populi vox Dei.* Of course, in one sense I may say of them correctly, "I don't know;" but that is not in accordance with the ordinary usage of the language, but only in the sense which one employs when he says, "In the realm of mathematics I can say I know; but outside of that, my knowledge all breaks down, and I can not say I *know* any thing;" but this is agnosticism.

REASONS WHY THE EIGHT-FRAME HIVE IS BETTER THAN THE TEN-FRAME.

As I have already said, the bees have spoken on many of the material points of this matter; but I am disappointed to find that you are in no way inclined to listen. I find you agree with me in nothing but in those points relating to the things we want. You agree that we want plenty of bees early, and that, at the proper time, we want all the bees that can be spared from the brood-chamber to go to work with alacrity in the supers; but not a step further will you go. You will not even admit that, other things being equal, more bees will be produced early in the smaller hive than in the larger one. That there is less space to be kept warm has little or no weight with you. I just said that, though the bees talk, you are not disposed to listen; but perhaps *your* bees do not talk. Mine do.

My bees say, and have reiterated it a thousand times in the most unmistakable manner, that, the smaller the hive, the more comfortable and healthy they are, and, consequently, the more rapidly they increase at the opening of spring. But, half convinced, you ask if I have settled positively that colonies in eight-frame hives will average as strong at the close of winter as colonies in larger hives. I have had much experience with hives of different capacities. For a number of years I used only ten-frame hives; then eight and ten together. Now I use the eight-frame hive; the two-story Heddon, equal to the ten-frame hive; and the one-story Heddon, equal to five L. frames; and the answer my bees have all along given to the question is, that you can not increase the strength of the colony—i. e., at the end of winter, by increasing the size of the hive after a certain limit is reached, which in most seasons is about that of the eight-frame hive; that other circumstances are more potent in that matter than the size of the hive, and that even the one-story Heddon, if the previous fall was *favorable* to *it*, will contain colonies nearly as strong as those in the ten-frame hive, and strong enough for profit. They say that, in seasons favorable to the *larger* hive, the colonies may average a little stronger than those in the eight-frame hive; but they do not say that they are, therefore, better. They have told me, time and again, that it is not safe to wager that those strongest in early spring will produce the most surplus; and I venture to add that, as it is cheaper to keep a cow warm in winter with the aid of a good roof and tight walls than with grain, so it is more economical to aid in the protection of the brood in spring by sawdust packing than by an otherwise useless wall of live bees.

Then you further ask: "And if there's enough honey in the larger hive, may not the empty space be less than in the smaller hive?" To that my pocket-book speaks up and says pine boards make cheaper dummies than do combs of honey.

Again, you suggest that one "might ask whether the bees had ever stated in a positive manner that a lot of brood late in the harvest was a damage." After again turning over this expression I can not escape the conclusion that by "lot" you mean an unusally large amount —or, as the schoolchildren say, a "big lot;" and my heart sinks when the proper words come to my mind to characterize your argument as it seems to deserve, for you fall into a device used by those who argue for victory, not for truth. Whether it was intentional or not, I admire the ingenuity of the false logic. You first use "lot" in the sense of an unusually large amount, and then, with exceeding skill, drop it, but carry it along by implication in the sense of a "small lot," for a wife is the smallest lot in the way of a family a man can well have. It would at least have been a fairer statement if you had said, "A young man may get ahead faster after he has a wife and twelve or fifteen young children to support." though that might have interfered with the hoped-for effect.

But hear what my bees say to the supposed question. They say the extra brood requires a large amount of food; that to prepare food, to feed and otherwise care for that brood, requires a considerable force of bees, which are detained from work in the supers; they say that the first lot emerges from the cells a little before the end of the early harvest, too late for use then, and too early to be of much use in the fall harvest, if there should be one; that, as the first extra brood emerges while nectar is still coming in, its place will be taken by a second extra brood which requires the same expense of food, and which, having hatched about the first of August, will cut no figure the ensuing spring, having, in the mean time, furnished no reason for their being, unless in exceptional cases where there is a fall harvest, and that they are not even of use in keeping up the strength of the colony, as the bees reared in an eight-frame hive are abundantly sufficient for that. Without going further into details, I think most bee-keepers would have no difficulty in finding that those two broods of extra bees have been no small damage, and that it could not well be otherwise where the honey harvest comes as it does pretty generally in this latitude.

Further on, in response to my remark, "The ten-frame hive having more space below, and, as a rule, more brood that will prove a damage, and greater accumulations of honey in the brood-chamber, all of which circumstances have a powerfully restraining influence to keep the bees from going into the sections in full force, is manifestly at a great disadvantage," you ask how I know all that; whether the bees say so; and whether it is a fact that a greater amount of brood and honey below restrains from going into the sections. Yes, the bees say so, and it is a fact. As regards property and children, bees are very human; and it is hardly necessary to say more on this point than that He who spake as never man spake said to the human family, "Where your treasure is, there will your heart be also." And the greater the treasure, the stronger the restraint. You certainly must admit that the extra spaces between the combs will be occupied by the bees, and that the extra brood must be fed and kept warm, and that a large number of bees will be required to do all this.

Then you ask, "If you take away all the brood and all the honey from below, will the bees go up into the sections with a rush?" Most assuredly—at least, that is what my bees tell me, always suiting the action to the word.

"If the brood-chamber be chock full of brood and honey, will the bees be entirely restrained?" you ask. No, not entirely, but powerfully; and especially is it so with honey when the bees are permitted to put it in quantities in the upper part of the brood-combs. When you accept this truth, and adapt your practice to it, you will no longer spend your time fiddling with "bait sections."

But there is so much to say that strength and space would fail, and I may as well close abruptly here, and will do so with this question: If brood and honey do not powerfully restrain the bees from going up, what influence is it you so sedulously seek to overcome with your bait sections? R. L. Taylor.

Lapeer, Mich., April 7.

[The foregoing was sent to the Doctor, who replies:]

By Dr. C. C. Miller.

Dear Brother Taylor:—If all the readers of Gleanings enjoy the reading of your letter as much as I have done, I'm sure there's one number of Gleanings worth the subscription price. You've such a good-natured way of knocking a body down that he feels he must get up with a smile, even if he has hard work to keep from crying. You've pretty nearly persuaded me that I'm arguing for the sake of argument, and mixed me all up in general. But I'll try to hold out for another round.

I confess you make the difficulty in the matter of experiment look a little greater than it did, and perhaps I must agree with you in that, but it seems to me it ought not to take so many years. C. P. Dadant thinks it ought to take three years; and when you say "a series of years" I'm afraid you mean even more than three. But it seems to me that two years ought to tell a good deal about it.

You object to my making you say that we'll "get all the bees we want by June 15th in an eight-frame hive." Then you quote what you did say, but you don't quote the words from which I tried to condense your statement. Here's what you said: "In 99 cases in 100, the eight-frame hive would contain all the brood that can return a profit, etc.," and then you spoke of rearing unprofitable bees afterward, so I had no thought of quoting you unfairly, as I thought you didn't want the unprofitable bees that would be afterward raised. I'm sorry I tried to shorten and didn't quote verbatim, for I see how that word "want" may be understood wrong. I think I meant it right.

It isn't a bit kind of you to poke fun at me because I'm trying to get bee-terms somewhat straight in the dictionary. I'm having a hard enough time of it without having one of my friends make me cry out, "Et tu, Brute!" [Printer, be sure to use a capital B there; and if you have any Latin letters, use them so that will not be understood to be an English word.]

I don't quite understand you, in speaking in your former letter, about "brood that will prove a damage," and now speaking as if it would not be a damage; and I'm sure I'm willing the word "lot" shall stand for just the amount of brood you meant, whatever that may be. In any case, I think the question remains open as to whether "brood that is a damage" and "unprofitable bees" are raised in the larger hive.

While I don't quite get the drift of some of your talk, some of it is quite reassuring, and makes me think that, after all, the small-sized hives that I like so much better to handle may be all right.

But to come back where we started. What troubles me is, that I am using small hives just because others do, with some theoretical reasons for doing so, but with very little evidence from actual practice that, in the long run, the smaller hives are better. You and others tell me they are better. Still others, and among them bright men and successful men, tell me the smaller hives are not so good. But from neither do I get much in the way of figures as practical proof.

I am troubled, too, by that question of Dadant's: "If large hives are better for extracted, why are they not better for comb?"

I don't get as large crops with the small hives as I did with the large. Just how much of that is to be charged to the seasons, I don't know.

I have much more trouble with swarming, or, in other words, have much more swarming, with the smaller hives.

It is difficult to get enough stores in the eight-frame hive to last through winter and spring, as the bees occupy so much of the combs with brood that there is not enough room for stores.

But the eight-frame hives are, oh so much nicer and lighter to handle! A super that holds 24 one-pound sections is, I think, better than a larger one, and it doesn't go at all well with a ten-frame frame hive, but it goes perfectly with an eight-frame hive.

If I had been smart enough to keep part of my ten-frame hives going, so as to compare the two kinds, I might have some practical certainty about the matter; but, as usual, I went headlong, and now I'm trying to get some one else to tell me what I don't know.

Marengo, Ill. C. C. MILLER.

[Here is something, Doctor, that is short and pithy, and perhaps is what you are looking after.—ED.]

HAS TRIED THE EIGHT-FRAME HIVE, BUT FOUND THEM WANTING, AND WHY.

By C. A. Hatch.

Friend Root:—Although you do not invite a general "pitch in" on the discussion of eight vs. ten frame hives, I feel just like having a hand in the fight any way, for I can not agree with the statement that it is settled that the eight-frame hive is best for comb honey. When the general stampede for eight-frame hives was, I concluded with the rest that I wanted only that kind; so I commenced to change over all my ten-frame hives as fast as was convenient; but when I had some 30 or 40 changed I began to grow suspicious, and gave closer attention to results; and I became so thoroughly convinced that I had made a mistake that I sold all my eight-frame hives, and now no man could sell me an eight-frame hive except at about two-thirds the price of a ten-frame. After using eight frame by the side of ten for some three or four years I found that, as nearly as I could estimate without carefully weighing, I got at least 25 per cent more honey from the large than the small hive, no matter whether the colony was worked for comb or extracted. And by the way, Bro. Root, has it ever been proven that we need a different number of frames for one kind of honey from what we do for the other? If so, for what reason? and who proved it? I had supposed that it was an axiom in bee-keeping, that, the more brood surface to a hive, the greater chance for getting sections just over the brood, where they are so sure to be filled; and Taylor admits the ten-frame hive will have the most brood; then why not the most honey?

We all know how loath bees are to put brood into the two outside frames, instinct seeming to tell them that these two should be filled with stores; and it is this very instinct which spoils theory about eight frames being best; for the queen, unless compelled to do so, will not fill six frames only; and it is a poor argument to say that six frames full of brood are as good as eight filled in the same way. True, you can compel the queen to occupy the outside frames by shifting them to the center of the hive; but you have run against nature by destroying these reserve stores. Is it not a fact, that, to get a queen to do her best, there must be at least 10 days' food-supply in the hive? Nature tells the mother-bee better than to rear a family of children to prospective starvation. Most of our bees for business must be raised before any honey is found in the field, and hence must depend on that in the hive, or you must feed; and if you must feed, how much nicer to just hang a frame of honey at the side of the brood-nest than to fuss with feeders, as one must where he has compelled the queen to fill all the frames.

Bro. Taylor's assertion, that, other things being equal, more bees will be raised in an eight-frame hive early in the season, would be conclusive if it were proven; but the reverse has been my experience. I think, for the reasons heretofore stated, viz., aversion of the queen to occupying the outside frames, and the requirement of these two reserve frames for stores to get bees to do their best.

Bro. Taylor's assertion, that there will be more bees in the eight-frame because there is less space to warm, is nice in theory; but comparing the one story of a Heddon sectional hive in practice, side by side with ten-frame Langstroth hives, I ound the latter built up farther, notwithstanding the space to warm was over twice as large. I *wanted* the bees to prove the smaller hive the better, but they would not.

In regard to experiments, I think that it is very important, as Dr. Miller suggests, that bees to be used for the experiment should be wintered in the same hive, or, rather, on the same number of frames. Also let a half of each lot be worked for comb honey, and the other half for extracted, and I am thinking there will be a reversal of some of our opinions, and some of the things which are now thought to be settled will be unsettled. You know the statement that it takes 20 lbs. of honey to produce 1 lb. of wax went unchallenged for years, but was finally proven to be almost if not twice too much.

The eight-frame hive has many things to recommend it in a mechanical way. It is cheaper, easier made, for it requires narrower lumber for tops and bottoms; is lighter, and easier handled; but as loath as I was to give it up, the "dollars" argument was too much, and I had to yield. Yes, Dr. M., we are too much like sheep. When some bell-wether jumps the fence, and cries "Good!" over we go, right or wrong.

Ithaca, Wis.

TEN-FRAME HIVE PREFERRED.

By H. M. Seeley.

I see there is a discussion started in GLEANINGS as to which is better for comb honey—eight or ten frames. I have been using both, side by side, for the last four years, and prefer the ten-frame hive every time, as I can get just as much comb honey, the bees winter better, and build up fully as soon in the spring, and I often have nine and ten frames full of brood.

Harford, Pa., April 9.

TEN-FRAME LANGSTROTH VS. QUINBY HIVES.

By C. P. Dadant.

To begin with, I will say that we are entirely unfit to discuss the question as it is put; viz., 8 or 10 frame Langstroth hives, for the reason that we have never had a single Langstroth 8-frame hive. Our experience runs between 8-frame Quinby or 10-frame Langstroth, against 10-frame Quinby hives, which are much larger than any thing that is used by the majority of bee-keepers.

We must, therefore, put the question as follows: Do we want a 10-frame Langstroth hive, or a smaller one or a larger one? Tally Dadant on the side of the larger hive, for we consider the 10-frame hive too small. To me, the answer to the public feeling on the subject is, that the smaller the hive they have, the smaller they want it; and last fall at Chicago, when a vote was taken on the subject, I heard several say that an 8-frame hive was *even too large*. Why don't the folks try some large hives instead of disputing between the 10 and 8 frame, which are both, in our opinion, too *small*.

Your answer to Mr. Taylor, that a large hive will have more bees and more honey, is just the answer I should have made him. There are undoubtedly circumstances in which a small colony will find itself in a large hive, and will not be warm enough; but I will not do you or Taylor the injury of supposing that you do not know what partition-boards or followers are for. When we have a small colony in a hive, and we see that they need warmth, we reduce the capacity of the brood-chamber. But when we keep hives on 10 Quinby frames, we have a large brood-chamber, lots of honey, lots of bees, and lots of brood; and we winter a more powerful colony than you can in any 8-frame L. hive.

What do the bees say? That is just what we have been wanting you folks to find out. We have found out what ours had to say, in this locality, and we transferred nearly every one of our 10-frame L. hives and all of our 8-frame Quinby to large hives several years ago. We can give you the names of half a dozen people on whose farms we have or have had bees, and they will all tell you that the big crops always came from the large hives, comb or extracted. Nay, did not Ernest Root tell me, personally, that one of the leading comb-honey producers had said (in private, not wanting to be known) that Dadant was right, that he himself used a large hive in comb-honey production, but that there was no use in trying to educate people to a thing that they did not want to try, and which, if they tried, would only cause honey to be more plentifully produced and be still cheaper?

There may be something in location, and it may be that we should see the thing differently if we were further north. It may be that the bees' answer in Michigan would be different from what it is here; but one thing I will say: If an experiment is to be made, it will not be conclusive, in my mind, unless it is tried on at least 25 hives of each kind for at least three years. Unless the season is very good, a colony in a very large hive will not attain its full power during the first season. Again, there must be more honey left to winter a strong colony than a weak one; but just depend on them to take care of that if you do not rob them too close.

Now, my dear sir, I know we are in the minority, and I am afraid I am preaching in the desert; but I don't care a straw for that; and, in fact, we had just as lief be quoted as an exception on this subject for the rest of our lives. We can raise the honey just the same. One question: You all say that a large hive is better for extracted honey, and a small one for comb honey. Please give us the reason for that. We want a hive to accommodate the capacity of the queen, and that is all, for we do not believe, as Hutchinson does, that queens cost nothing.

Hamilton, Ill.

[Our friends have given us very fair, candid opinions, based upon their extensive experience. Yes, we know of a few extensive bee-keepers who think the Quinby none too small. We would refer, for instance, to Capt. Hetherington and P. H. Elwood, of York State, who have, or did have, in the neighborhood of 4000 colonies. We made many inquiries of the bee-keepers in Mr. Dadant's vicinity, and found that all, or nearly all, were using the large hives. For example, we would mention the Axtells, Hon. J. M. Hambaugh, and A. N. Draper.

Regarding the 8 vs. the 10 frame Langstroth hives, some of our readers will remember that we first made and recommended the 10 frame hive. Yes, for a time we *opposed* the 8-frame; but the pressure got to be so great that we finally made it the leader. Speaking of large hives, we can't for the life of us see the difference between a large hive spread out in one story, like the Quinby, and the *same* capacity in 8-frame Langstroth or half-depth L. frame hives piled up one on top of the other. We had one colony two summers ago, occupying five 8-frame bodies, and a score or more occupying three such bodies. The 8-frame hives may be tiered up so as to make large hives; by using only one body we have a small hive. Mr. Dadant uses a division-board because it is evident he finds it necessary to reduce the capacity of his Quinby hive at times. When *he* would give a colony its full capacity of brood-chamber, *we* would give the same capacity by adding an extra 8-frame story, and putting in the required number of frames. When this same discussion was up a few years ago, the testimony was overwhelmingly for the 8-frame. Again, this matter was brought up at the last Chicago convention in this wise: The question was asked how many favored and used the 10-frame Langstroth hive. A show of hands revealed that there were only 10. When it was asked how many used the 8-frame, 42 responded. When it was asked how many had changed from 10 to 8 frame, 24 held up their hands. The reverse of the question showed that only one had changed from 8 to 10 frame.—ED.]

COMB-BUILDING.

IS WAX SECRETION VOLUNTARY? A DISCUSSION BY MOBLEY AND DOOLITTLE.

By G. H. Mobley.

Friend Root:—Mr. Doolittle said, in answer to a question some time ago, that beeswax is a fatty substance peculiar to the bee, and produced by the consumption of honey, etc. While this is true, yet I take the ground that it is misleading in this: He seems to convey the idea—and others too, I admit—that bees consume more honey when building comb or secreting wax than they do at other times. This I believe to be a false idea. Bees are like cattle or hogs or other animals. If they can obtain sufficient food they will eat all that is required to produce an abundance of fat. They never stop to inquire whether they need the fat for any particular purpose or not, but eat away as their appetites demand and require, without regard to consequences. Now, I hold this to be true as to the honey-bee: It eats all that its appetite requires, and no more, at any and all times, whether the process of comb-building is in progress or not; and the claim as made, that it takes 20 lbs. of honey to produce one of comb, is a bosh—as the same bees would consume the honey if no comb were built at all. Now, the facts are here: Bees will not build comb unless they need it, possibly because they do not want it in the hive unless they have something to put in it. But the moment the combs are all occupied, then the building of combs is at once commenced, and kept up as long as the honey is coming in and there is room left for it to occupy. As a matter of fact, the colony having combs built will store honey much faster than the one that has to build the combs as they gather the honey. But each colony will consume just as much honey as it needs, and no more, to satisfy their hunger. Now, if there were any difference in the consumption of honey in the two hives, I am forced to the conclusion that the other one—the one that had all combs built—would consume the most, from the fact that they exercise more, have more active work, and work much harder than they would in the hive building comb, which business requires, seemingly, much less exertion than it does to go out into the fields and fly from flower to flower and battle with the winds and obstacles that they are constantly encountering. Often, when a bee returns with its load of honey or pollen, it is so tired that it will fall short of the hive-entrance, and have to rest for a while before it can fly again. Who ever saw comb-builders stop to rest? I think this consumption-of-honey idea originated with foundation or extractor men as an advertising medium, and has no foundation that will stand the test.

Walker, Mo., Dec. 8, 1893.

[The foregoing was sent to G. M. Doolittle, who replies:—ED.]

In replying to the above, I wish to state, first, that Mr. Mobley exposes his ignorance of the past when he charges that the idea of its taking 20 pounds of honey to produce one pound of comb originated with foundation or extractor men, as an advertising medium to sell comb foundation and extractors. This 20-pound "theory" or "idea," as it is so often called, is no theory or idea at all, but the result of the most carefully conducted experiment by that prince of apiarists, Huber, who conducted these experiments and gave the results of the same, years before either the extractor or comb foundation was thought of. In fact, this matter of the consumption of honey in building comb has been talked of far less since foundation and the extractor came into being than it was before the advent of these. Such a thrust at those who are working for the good of all in giving us improved extractors and foundation is very unkind, to say the least.

It seems strange to me, and has all along in the past, that the idea obtains with many, that, because a man has something to sell, he is unqualified thereby from giving an unprejudiced opinion relative to the merits of any thing he has to sell. If the man who has spent his life-work in producing something to meet a long-felt want is not qualified to tell us of the advantages arising from the same, pray tell us who would be. Are we so selfish ourselves that we look with suspicion upon everybody else? Are we so jealous of some pet scheme of our own that we think no one can give the unvarnished truth about something they have to do with? Because Mrs. Atchley is the largest queen-breeder in the world, does it follow that she can not tell the truth about queens, and how to rear them? Such thoughts come only from a selfishness that can not take in the great brotherhood of man. When it comes to pass that we are not willing to accord to others the sincerity of purpose which we claim for ourselves, we are not doing unto others as we would have them do to us. Brethren, let us be more as we should be, that we may be of the greatest use in the world.

Huber's experiments were, to shut a swarm of bees up long enough so that they would consume what honey they carried in their honey-sacs, when they were fed till they produced a pound of comb; and from several experiments along this line, and then striking an average, it was found to take 20 pounds of honey or sugar syrup to produce one pound of wax or comb. I have never heard a doubt expressed but that these experiments gave the truth in the matter, where bees were confined to the hive; but it has been thought that, where the bees had the liberty of the fields, that pollen might take the place of honey to quite an extent in producing wax, or that the bees could produce wax by eating pollen in connection with less honey, so that not more than eight or ten pounds of honey would be consumed, when bees had their liberty, in producing one pound of comb. If I am correct, Mr. Elwood places the amount at about 8 pounds under such circumstances, and that comes very near the conclusion I have arrived at, after close observation for years.

The comparison of bees with cattle or hogs can not hold good, in that the latter never use the fatty matter secreted, for any purpose outside of their own persons; while the fatty substance or wax of the bee is secreted only on the outside of the person, and detached therefrom for a separate use from the sustenance of the individual bee. It does not hold true in the least, that wax will be secreted while the bee has all the honey to eat that its appetite requires, as other animals secrete fat under those circumstances; for if it did, wax would be secreted all through the fall months as well as the winter, and no surplus ever provided or kept on hand. That bees know what they are about is proven from the fact that, if the hive is full of comb, and from 20 to 30 pounds of honey in these combs, the bees will not secrete a particle of wax till honey comes in from the fields in the spring; while under the same conditions as to honey, they will at once begin to use on this honey, and secrete wax to supply the place of a comb which the apiarist may chance to take out from the center of the cluster. I have tried this several times, and have always found the bees required hanging in festoons, with abdomens gorged with honey, when in a few days the scales of wax would appear on the under side of the abdomen, and comb-building be in progress.

No, Mr. Mobley, bees do not secrete wax at all times "without regard to consequences" when they have all the honey they need to eat, or that their appetites demand, as do the hog, cow, or sheep; because this wax is of no earthly use to keep them warm, to supply wasting muscle, or for any other purpose whatever, save for manufacturing combs as they require; and when secreted, and the chance of using it as they intended can not be accomplished, it is thrown out of the hive as so much waste or useless material, and no more secreted till it is needed for building new combs, lengthening out cells already too short, or for capping honey. When neither of these is needed, bees do not secrete wax, no matter how much honey they have access to; and when these are needed, and supplied, it always takes an extra amount of feed and hanging in festoons to produce the wax for the needed work, because wax is not kept stored up in the person or on it, as is the case with fat in other animals. G. M. DOOLITTLE.

Borodino, N. Y.

RAMBLE 107.

BEE PARALYSIS.

Again I have rambled to the western end of this great San Bernardino County. A good horse with a staying gait, and Bro. Wilder for a driver, made that feature of the journey very pleasant; but a norther, with its accompanying dust to face a portion of the way, was very distasteful, especially when we opened our mouths to speak, and inhaled a handful of fine dust. As we neared Ontario, however, we left the norther behind us. The San Antonio Mountains seem to shield this portion of the valley from its worst features, and the people are not slow to laud the feature to the skies. No wind here, no frost. This is the veritable garden of Eden.

Our first call was upon Mr. P. S. Douse, who has erected a brand-new shop, with all new machinery for the manufacture of various things in wood, and especially bee-hives and supplies. From the number of Dovetailed hives and Hoffman frames piled up, there must be quite a demand for them hereabouts. Mr. Douse is a six footer, or a little more so, and Bro. Wilder and I felt like quite short men beside him. Mr. Douse has had much experience as a bee-keeper; and the experience that has cost him the most is in losing many colonies of bees through the disease known as bee paralysis. This disease seems to be particularly virulent around Ontario; and though Mr. D. had lost quite a number of colonies, some of his neighbors suffered greater losses than he did. A Mr. Nichols had 35 colonies, and lost every one of them. I was referred to Mr. P. W. McFatridge as the man who could give a full history of the matter in Ontario.

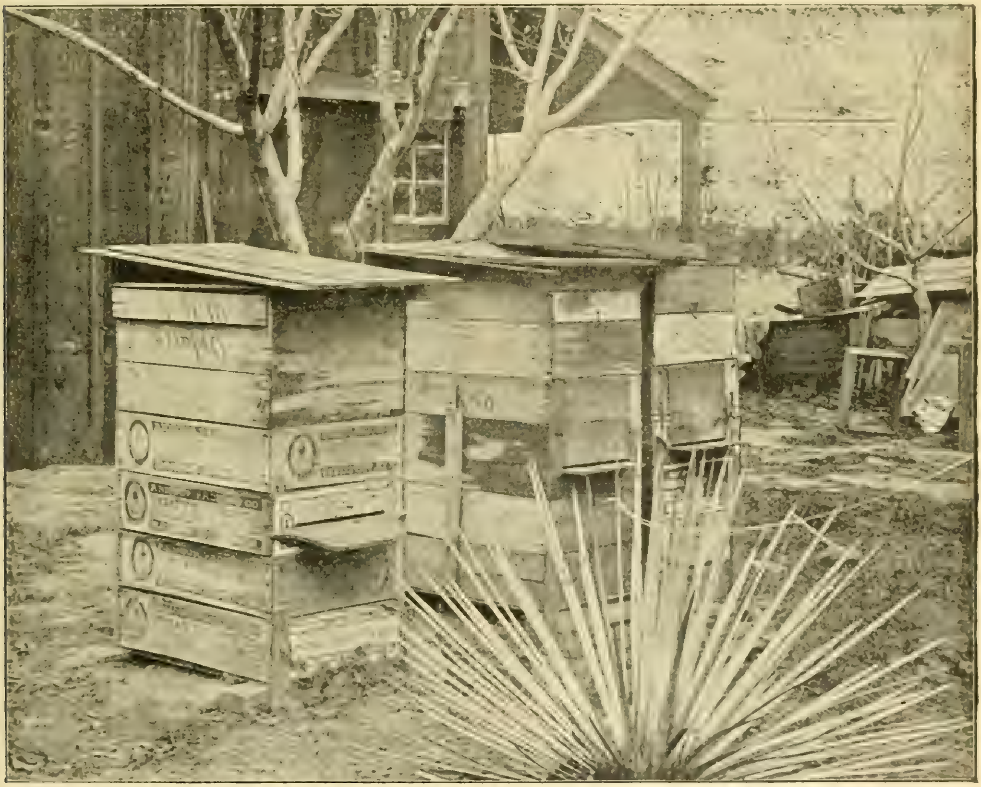
A few months ago the (then) editor of the Apicultural Department of the *Rural Californian* reflected severely upon A. I. Root for sending a queen to a man in Ontario, and introducing bee paralysis into California. Mr. McFatridge was the man referred to. We found Mr. McF. in his cosy home among the orange-trees, well up toward North Ontario. Several of the household were picking those large handsome navel oranges, and Mr. McFatridge was superintending the job. Like all good bee-keepers, Mr. McF. was ready to talk bees, and we adjourned to the apiary, which was near the house and among the orange-trees. The hives, however, instead of being placed out in business order, were piled up near the end of the honey-house, presenting a forlorn appearance. The wind does not blow in Ontario; but in the photo it will be noticed that the tall eucalyptus-trees were bending under a slight zephyr, and sighing a sad requiem over the dying apiary.

Mr. McF., referring to his journal, said that, in 1889, he received several queens from Mr. Root; but the one which arrived on the 25th of

BEE PARALYSIS AND ITS EFFECT ON A CALIFORNIA APIARY.

July was the one to which he traced his troubles. It was her progeny that first showed signs of the disease. The disease, however, did not become virulent until 1892. That season the apiary numbered 60 colonies, from which were obtained 9000 lbs. of honey. The apiary was increased to 102. In 1893 the bees died off so rapidly that no honey was produced; and at the present time there are about 20 hives that have bees in them, or, as Mr. McF. says, not enough bees to make 5 good colonies, and still dying. The queens seemed to lay rapidly, and young bees hatch; but about the time they were old enough to fly, the disease would take hold of them, and the mortality was so great that double handfuls of bees could be taken up in front of the hives. The entrances would also become clogged with the rapidly dying bees. The few remaining hives in the apiary gave us a chance to see the results, and nearly all of the bees in front of the hives had the appearance of healthy bees, and only a very few had that shiny look which so often gives warning of the disease. Further inquiry revealed the fact that, after the preliminary stages of the disease had developed in 1890, queens were purchased by Mr. M. and by Mr. Douse, from Doolittle, Trego, Mrs. Atchley, and others. The progeny from these queens were all more or less affected with the disease. Mr. Douse has discarded the Italian bee entirely, and substituted the black bee, and claims they are not much affected by the disease.

Mr. McF. believes in the microbe theory, and believes that the drones carry the disease. Males from a diseased queen, mating with queens from colonies heretofore healthy, would communicate the disease. In that way the queen of July 25, 1889, would thus hand the disease down from generation to generation. As Mr. McF. lives only four miles from Claremont the case has been presented to Prof. Cook, and it is hoped he can give us some light upon the subject. Prof. C. has certainly a good subject to study.



PACKING-BOXES FOR BEE-HIVES; THE EFFECT CALIFORNIA CLIMATE HAS ON BOARDS.

I asked Mr. McF. if he had tried the salt remedy.

"Yes, sir, 'e," said he; "I have tried salt weak and strong; sprayed and dipped almost to the verge of killing the bees with the remedy."

Mr. McF. had practiced migratory bee-keeping with good results in the past, moving the bees from among the fruit-trees to the sage in the foot-hills. In front of his honey-house I noticed three large hives which were explained, and used for rearing early queens. Although

Ontario is in the frostless belt, the nights do get to be quite uncomfortable, and the queen-rearing hives need protection. The hive proper is surrounded with a case made from packing-boxes, and the spaces packed with absorbents. The entrances will be noticed well up on the front of the hive. Under the bottom of the hive proper was a space large enough to put in a five-gallon honey-can through a door in the rear. At night in early spring the can is filled with hot water, and placed under the hive, keeping up the temperature for a whole 24 hours, when another can of hot water is inserted. But what is the use of rearing queens when they are sure to develop bee-paralysis? The disease in this case is worse than foul brood.

Before departing, Mr. McF. treated us to some of those delicious oranges. A tree reserved for his own private use had oranges upon it which had been on the tree for two years, and were sweet and toothsome with age. The orange is a persistent clinger, and it is no unusual sight to see the yellow fruit and the blossoms thickly studding the tree. On Euclid Avenue, Ontario, we found the horse-cars still running as of yore. The mules draw the car up, and then are mounted on a little truck behind, and all merrily and swiftly ride down. On the avenue we found Mr. J. V. Caldwell, recently from Illinois. Mr. C. is here with his family to stay; is an enthusiastic bee-keeper, and already has an apiary out a little from Ontario. Though in the "paralysis belt," his bees have not been much affected with the disease, and that the disease will get under control is the wish of the RAMBLER.

[It will be remembered that, some time ago, there appeared some libelous matter in the *Rural Californian*, to the effect that we were disseminating "bee-paralysis" on the Pacific coast, and that a certain bee-keeper in Ontario, Cal., who had purchased queens of us, and whose name was not given at the time, claimed that his apiary was being rapidly decimated by a disease alleged to have originated from a queen purchased of us. We afterward learned that the editor of the apiarian department of the *Rural* was evidently giving vent to a little personal spite on account of a difficulty we had with him some years ago. Our attorney was notified to look into the matter; and at the same time our special correspondent, Rambler, was instructed to hunt up the bee-keeper in Ontario, referred to. So far as the matter between ourselves and the publishers of the *Rural Californian* was concerned, the latter pursued a policy that was satisfactory to us, and the legal aspect of the matter was dropped.

The article above is the result of the Rambler's investigation, and we wish to say at the outset that we have every reason to believe that Mr. McFatridge is a straight and honorable man. We find, too, that we did send him a queen from our apiary about the time he specifies; but, as we can show, he is certainly laboring under a great mistake in attributing the source of the disease to that queen. By consulting our records we find that we did *not* have bee-paralysis, or "nameless bee-disease," during 1889. In the second place, we do not find from our records that Mr. McFatridge ever wrote us regarding the queen. If he did, they do not show it. Of course, if he had had even a suspicion of such a thing he ought to have let us know it. In the third place, we call attention to the fact that bee-paralysis was and had been raging pretty severely during that season in certain parts of California—yes, right in Mr. McFatridge's *own county, before* we sent the queen in question. As an evidence of this we would refer to a single paragraph from an article written by W. A. Webster, p. 583, GLEANINGS for July, 1889:

> You will doubtless remember my letter of last winter, about the new bee-disease. If you are not too much pestered by ignoramuses, and entirely out of patience, I will try to show that my trouble was not due to a local cause, *but was the forerunner of what threatens to seriously cripple the bee-keepers of the State.* With the opening of spring I find my entire stock of 170 stands "gone where the woodbine twineth," and the monster making serious inroads among my co laborers. From what little I am able to gather, I believe the same thing is at work in *Inyo, Ventura, and San Bernardino Counties.* Developments are a little different now, as to symptoms, from my previous description; viz., of mature bees, abdomen distended and hard; trembling, listlessness, death; brood baldheaded; many dead, two-thirds or fully developed sticking in the cell; queen a failure, and moth completes the work of destruction. So far as I am able to learn, there has not been over two per cent of natural swarming through apiaries in this county. We have arrived at the goal for which our eastern brethren sigh—non-swarming; but, like the man whose cow had learned to live without eating, death closes the scene.

The italics in the above are our own, and we would call attention to the fact that Ontario is in San Bernardino Co. The letter that Mr. Webster refers to was published on page 165, Mar. 1, same year; and in that article he began to notice the presence of the disease the previous September, 1888, and reports he had a loss of 50 or more colonies as the result of this disease.

Now, then, having shown conclusively that the disease was raging on the coast, and was threatening "to seriously cripple the bee-keepers of the State," *before* we sent the queen from which Mr. McFatridge alleges the disease originated, and having shown, too, that there was no bee-paralysis present in our home apiary, nor in any of them, in fact, during that year, 1889, it would seem altogether improbable that the disease could have come from the queen sent to friend McFatridge in July of that year. Another thing, notice that he says the disease appeared in colonies having queens purchased from Doolittle, Trego, Mrs. Atchley, and others; and that the progeny from all of these queens were more or less affected by the disease. Now, we do not believe for a moment that any of those breeders sent that disease with the queens. The disease was *already prevalent*, as the extract above clearly shows, and simply made itself manifest in colonies having queens shipped from the East.

We were interested in those drygoods-box hives shown in one of the half-tones. This picture shows better than any thing else the effect of the California climate on joints or corners merely *nailed* together. Doesn't it show the need of dovetailed or lock-corner joints?—ED.]

CALIFORNIA ECHOES.

By Rambler.

Why are Dr. Miller's Straws like the busy bee among the flowers? Because it is a harvest of small things.

The report of the Vermont State Associatoen says the membership reported a yield of 59,413 lbs., comb and extracted honey, which was considered about half of the product of the State, or, say, a total of 60 tons. It is a little curious to note, that Mr. Richardson, of Ventura County, this State, produced 64 tons, or more than the whole State of Vermont.

I hear of quite a number of bee-keepers who cut out pollen-laden combs, and let the bees build new combs. I don't believe the plan pays. Admit there is much pollen, I have never seen combs so full of pollen in the fall but would use it in the spring for brood-rearing, and that. too. here in California. Cutters and slashers, haven't you got a whim in your heads?

A Stray Straw gives us a point on larvæ in honey. and I fear there is much of it in honey in California. Many honey-producers are very careless in their methods of extracting, and much larvæ is thrown out with the honey; and where so many larvæ and so much larval food are mixed with the honey it certainly has an effect upon the flavor. The queen-excluding honey-board is a sovereign remedy for the evil.

Wonder if Somnambulist ever has the nightmare. If so, he can sympathize with the Stinger. I have slept in the same hotel with the latter, and I know that he has the doubled and twisted kind. Oh, no! Stinger's best girl has not gone back on him. The Rambler used to run a sawmill; it would run very slow or stop altogether when the pond ran dry. Wonder if that is what's the matter with the Stinger.

Mrs. Atchley, says, in *A. B. J.*, that it is hard to introduce drones to a colony having a laying queen. Quinby taught that the drones of an apiary were rather promiscuous in choosing their habitation; that they would be tolerated in any hive during the swarming season. I have an idea that Quinby was right. But I will not contradict a woman; no, sir, 'e; there's trouble enough around the Rambler's shanty now.

I will continue to use propolized burlaps for fuel for smokers, seeing that no less an authority than J. E. Crane, of Vermont, advocates it. Bee keepers in this State have told me that propolized fuel of any kind would set bees to robbing. I have seen no such effects. Burlaps are good fuel for smokers here. Straw, *a la* McIntyre, does very well, but soon clogs the smoker. This is not a rotten-wooded country, therefore give us the next best thing—burlaps.

Yellow flowers carpet the ground through March, and the head beauty of them all is the poppy, the State flower. Mrs. Kellogg describes it thus: "Think of finest gold, of clearest lemon, of deepest orange on silkiest texture, just bedewed with frostlike sheen, a silvery film; multiply this by acres of waving color, and you have a faint impression of what an eschscholtzia is." The modest alfilaree, barely peeping from the ground, spreads a purple carpet; the little blossom less that a half-inch in diameter gives up its nectar early in the morning, and bees work on it all through March.

That is splendid advice given to would-be emigrants, by Mrs. Atchley, and emphasized by Editor York on page 295, *A. B. J.* If we do live in the far West, Mrs. A. and I, and ramble around some, we do not have apiaries all cut and dried for you to sit down on where you can make untold wealth. We have had to write to quite a number that we are not in the locating business. Messieurs Emigrants, please paste the following in your hat, and look at it often:

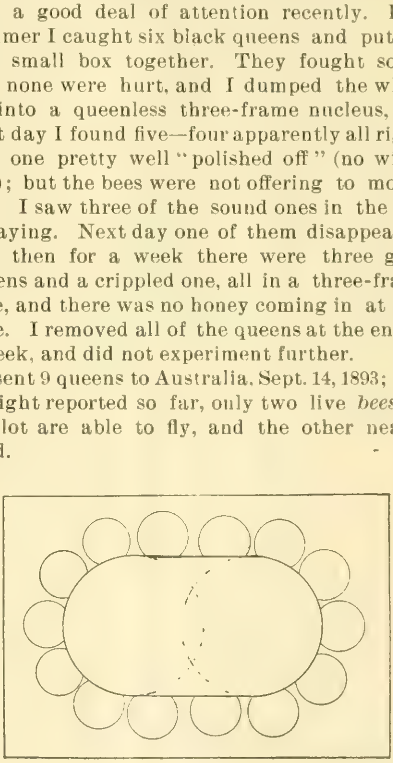
> While on this subject, let us say that we think that no one should rush off to a strange part of the country, intending to locate permanently, without first having thoroughly and personally investigated the advantages and disadvantages of the new place. We believe in people trying to better themselves if possible, but we also feel that every right-minded person will agree with us in urging deliberation upon those who expect to make a permanent move.

PLURALITY OF QUEENS IN A HIVE AT A TIME.

SENDING QUEENS TO AUSTRALIA A FAILURE; A WASHING RECIPE FOR DR. MILLER.

Two or more queens in one hive seems to have had a good deal of attention recently. Last summer I caught six black queens and put all in a small box together. They fought some, but none were hurt, and I dumped the whole lot into a queenless three-frame nucleus, and next day I found five—four apparently all right, and one pretty well "polished off" (no wings left); but the bees were not offering to molest her. I saw three of the sound ones in the act of laying. Next day one of them disappeared, and then for a week there were three good queens and a crippled one, all in a three-frame hive, and there was no honey coming in at the time. I removed all of the queens at the end of a week, and did not experiment further.

I sent 9 queens to Australia, Sept. 14, 1893; and of eight reported so far, only two live *bees* in the lot are able to fly, and the other nearly dead.



Now, friend Root, are you not a "little off" (p. 941) about a dose of sea-water? I never saw an ocean steamer, but I doubt very much whether the mail would be allowed to get wet. The cage I used was like this: I took a ⅞-inch board about 5½x7½ and bored two 1¾-inch holes near the center; then I bored fourteen 1¼-inch holes around the outside for the bees, and put the candy into the center holes. I shall not take any new orders for Australia, as it does not pay. I have shipped to England successfully, but never to Australia.

Now, Dr. Miller, I can beat your washing-recipe all to pieces (p. 842). Soak the clothes half an hour in soft water, and rub soap on the dirty spots; then boil 20 minutes in the following preparation: Enough water to cover clothes; ¼ bar soap; 2 tablespoonfuls of "wash-o-lene." Do not put clothes in till the soap is dissolved; stir occasionally, rinse thoroughly; blue, and hang out. This will not injure any kind of clothing; but, of course, you must not *boil* those that are likely to fade. Try it, Rambler, and I will bet a last year's drone that you do not get any kerosene into your flapjacks.

Give us the footnotes. They are as essential as the salt in our food—"little, but all there." I always want to know what the Roots think of other people's views.

I use tin-can transplanting-tubes (see p. 67): I melt both ends off; and when I go to take up a plant I lay a small block on top of the can and work it down with a rocking motion, much as you sink the tile-spade. If one end gets bent, use the other; when both ends are too crooked for further use, get new ones.

I shall move 600 strawberry-plants a mile in the spring, and will go with a wagon and 600 cans, and get all at one trip. S. F. TREGO.

Swedona, Ill., Feb. 5.

[We don't like your export queen-cage "a little bit." With the large-sized Benton we have delivered at times nearly all the queens alive; but during the past season it was the exception when we succeeded in getting queens through alive. If it wasn't the sea-water it was some peculiarity of the climate at the time the queens were sent last season.—ED.]

CALIFORNIA HONEY-YIELDS PAINTED IN TOO ROSY COLORS.

A FEW FACTS ON THE "OTHER SIDE;" A VERY READABLE ARTICLE.

By W. G. Hewes.

On page 100, F. L. S., of Minnesota, wants to know what is the net profit per hive of bees in California; and the editor answers very correctly that a "fair colony under good management in a fair season ought to yield 75 or 100 lbs. of extracted honey," and then calls upon Rambler to help him out. On page 222 Rambler answers; and his statement, 150 lbs. as the average yield per colony, is so excessive an overestimate that I feel called upon to correct it. Rambler's neighbors may have been playing him for a tenderfoot by feeding him on yarns; or he may have reached these conclusions from a discussion on this subject which took place at a recent meeting of the State Bee-keepers' Association (see GLEANINGS pages 146 and 176). From another source I learn that Messrs. Corey and Wilkin are among those to whom these statements of large averages are attributed. I believe these gentlemen were misunderstood, for I know they would not knowingly make inaccurate statements. From Rambler's report (page 146) one would infer that there are seasons when the general average throughout the country is 400 lbs.

Some one, page 176, has led Prof. Cook to believe "that from 300 to 500 lbs. of honey were often secured from each colony in the apiary." In my ten years' experience as a bee-keeper in California I know of but one instance where an apiary of one hundred colonies or over has made an average of 400 lbs. of honey; and I believe all such cases throughout California, from the beginning of time up to March 25, 1894, can be counted on the fingers of one hand.

Mr. Wilkin and Mr. McIntyre are accounted as among the best bee-keepers in the State, and the location of their famous Sespe apiary is better than the average. In GLEANINGS for 1891, page 774, and page 173 for 1893, is to be found a report giving the averages of the Sespe apiary for sixteen years. According to that report, the average for that apiary was 73 lbs., or less than half of Rambler's estimate.

The best yield of any one year was 275 lbs. per hive. Only four years in the sixteen did the average exceed 100 lbs., and three seasons no honey at all was secured, and half of the bees starved.

My own average for ten years has been only about 50 lbs.; yet in only one year was my yield surpassed by the generality of my neighbors. There is something of a rivalry among bee-keepers as to who shall average the most honey to the hive. Some get big averages by barefaced lying, calling a four-ton crop fourteen, etc. Others, with a little more conscience, arrive at similar results by a process of reasoning something like the following:

He has, let us say, 100 hives, and cans up 5000 lbs. of honey. He loses a few swarms, he doesn't know how many, but estimates them at 50, and that each one would have given a surplus of 100 lbs. of honey. He lets his tank run over, spills about a gallon, but it looks like a ton. He calls it so. He's delayed in extracting for a few days from not having cans or tanks into which to put his honey, and promptly persuades himself that he has lost two extractings, which he estimates at 40 lbs. per hive for each extracting, or 8000 lbs. By this reasoning process a 5000-lb. crop and a 50-lb. average are changed into a 20,000-lb. crop and a 200-lb. average; and when his neighbor hails him with "Hello, Spoopendyke, how much honey did you get?" he promptly answers, "Ten tons."

C. W. Dayton seems to have sized up the weakness of the fraternity better than Prof. Cook or Rambler; for, when he speaks of averages of 300 and 400 lbs. per colony he qualifies it with "even if this is true" (see page 137). Messrs. Wilkins and Corey are both old-timers; and if they have kept exact records it will be of interest if they will have them published.

The season of 1893 was an exceptionally good one. If all the California readers of GLEANINGS will send to Mr. Root a correct statement of their averages for last year we can at any rate have some definite idea of what a good season is.

My record is, of hives in spring, 187; honey extracted, 28,431 lbs. Average per colony, 152 lbs., the same as that which Rambler states is the average one year with another. Why, if we could get 150 lbs. per colony each year we should be on the high road to wealth ; but now as the fact is, most of us are so impoverished that we live in shanties which the tax-collector scorns to place a valuation upon.

It is my belief, that, taking the bee-keepers as they come, from the mountains and from the valleys, from the fog districts and from the rainless districts, the lazy bee-keepers and the energetic bee-keepers, that the average of the whole, one year with another, will not be found to exceed 35 lbs.

But few bee-keepers have kept exact records of their yields; and, if called upon for an offhand estimate of their averages, even if perfectly truthful men, they are apt to remember the good years, forget the bad ones, and jump at conclusions; and if one goes hunting for big yields he can get them as big as he wants, for the sage-brush is as full of prevaricators as it is of ticks.

Newhall, Cal., Mar. 27.

[Now, Rambler, we will hear from you. Let's have the facts and figures for a series of years by all means from a large number of California bee-keepers, and we will save them up till we get enough to make a symposium. Regarding our estimate, we have to say that it was made after looking over a number of average reports from that State of gold and honey.—ED.]

SPECIES AND RACES OF BEES.

By Rev. L. J. Templin.

The question of the unity or the multiplicity of the species of the common honey-bee is one of both scientific and practical interest. Judging from the current literature on the subject, there seems to be considerable confusion in the minds of many writers on the subject; and especially is this true in regard to the Italian (or Ligurian) bee. By some this is spoken of as a race, by others as a species, and, at times, I believe, both by the same writer. No dogmatism can settle the question. Only a careful study of the relations existing among the various groups of organic beings will lead us to an intelligent conclusion. Even the most careless observer has noticed that the various organic objects, both vegetable and animal, with which he is surrounded, are arranged in groups, the members of which resemble each other much more closely than they do the members of other groups. It is on these resemblances and differences that the general classification of organic beings is based. At the basis (or foundation) of this classification we find the two great kingdoms, animal and vegetable, embracing all organic beings, whether great or small, simple or complex. These kingdoms are divided into sub-kingdoms; these into divisions, and these into classes, and these into orders, families, genera, and species. These groups gradually narrow down the objects embraced in them till, in the smaller groups, there comes to exist an actual likeness in most essential characteristics. But all these groups, except species, are artificial divisions, arranged simply for the convenience of comparison and study. It is not pretended that there is any relationship or affinity among the different members of these great groups—only a very general or remote resemblance in some features or characteristics by virtue of which they may be loosely thrown together into a group. But with species the case is different. Here we have both a resemblance and a relationship. Cuvier, the father of comparative anatomy, defines species as follows: "A species includes the individuals which descended from one another, or from common parents." Linnæus considered species as including "all those individuals propagated from one stock, and having in common certain distinguishing characteristics which will never vary, and which have remained the same since the creation of such species." Quatrefages, author of "The Human Species," gives the following formula: "Species is a collection of individuals more or less resembling each other, which may be regarded as having descended from a single primitive pair by an uninterrupted and natural succession of families." From these definitions of the term by the masters of classification, it is seen that species comprehends the compound idea of both filiation and resemblance. But specific identity is not predicated on every resemblance, because there may be general resemblances between members of different genera, or even different orders or families. Nor do we exclude from specific relationship for every difference, for we find a constant tendency in all organic beings to vary. No two objects, however close their affinity, are exactly alike in every particular. When the divergence from the specific type is marked, a variety is formed. Inasmuch as every individual may vary from every other individual of the species, the number of varieties that may be formed is practically unlimited. Any one who has studied the lists of varieties of cultivated roses and chrysanthemums among florists, and of fruits, both standard and small fruits, must have been impressed with the great variability of members of the same species. The same is true in the animal kingdom, as may be seen in any herd of so-called native cattle, or in a flock of barnyard fowls, where no care has been given to breeding to any particular type. Yet the variation is always within specific limits. It is not within the experience of men that these variations ever carry the variety across the boundary that separates different species, except in the case of monstrosities. In the vegetable kingdom, nurserymen and florists preserve and propagate useful variations by grafting, budding, cuttings, etc. In the animal kingdom this can be done only by selection and weeding out the undesirable individuals.

While there is a tendency in species to produce varieties, there is also a tendency in varieties to reproduce their varietal characteristics. When this tendency is established, and becomes hereditary, a race is formed. As every variety may become thus established and hereditary, there may be as many races or breeds in a species as there are varieties. One has to give but little attention to the breeding of our domestic animals to be impressed with the vast number of races belonging to each species. The horse, the ox, the sheep, the pig, the dog, the hen, etc., have each split up into numerous races.

At a bench show in England, some years ago, at which very rigid rules were enforced for excluding all but pure representatives of different breeds, seventy distinct races were exhibited. Mr. Darwin mentions 150 races of pigeons with which he was acquainted, and yet he was not acquainted with all the races then in existence. So great was the difference in these races, that, had each breed been considered a species, it would have required at least four genera to have contained them. And yet Mr. Darwin, who was so desirous of proving the transmutation of species, did not dare claim that, in all these distinct races, there was a single new species. The fact that impresses our minds at this time is, that all our domesticated animals have varied greatly under domestication, forming many very distinct races without, in any case, overstepping the limits of the species. Now, the honey-bee has been under domestication probably as long as some of the species named above—certainly from great antiquity. It has been bred in a great diversity of climates and conditions, and in a great variety of ways; and though it has not, until recently, been bred with the care that our common domestic animals have, still it seems reasonable to suppose that, under such a diversity of conditions and treatment, there would be considerable variation in racial characteristics.

As a matter of fact, we find quite a number of very distinct groups of the honey-bee. Are they distinct species, or are they simply races? For the further consideration of this question I must wait till a future time.

Canon City, Col.

SUGGESTIONS TO EXPERIMENTERS

ON THE SUBJECT OF FRUIT FERTILIZATION.

By Thaddeus Smith.

The time for sunshine and flowers is fast approaching, and some of the friends will soon be thinking of making experiments in regard to the connection of bees with the fertilization of the bloom of fruit-bearing trees and plants, and I wish to make some suggestions.

Mr. Gilliland's article on the "Elements of Uncertainty" in making such experiments should show us the necessity of being very careful; and yet Mr. G. winds up his article by suggesting "covering a whole tree with cheese-cloth." The use of cheese-cloth or mosquito-netting will never "eliminate the elements of uncertainty." Such a covering places the plants in an abnormal condition, and prevents the pollen from other plants reaching them in the natural way by catching it in the lint and fuzz upon the threads forming the meshes of the cloth, straining and excluding most of the floating pollen in the air from the plants.

In order to keep the bees from the flowers, and at the same time permit the pollen floating in the air to have access to them, I suggest the use of wire-cloth netting for covering. The meshes of the wire cloth should be quite open —say not less than an eighth of an inch—just small enough to exclude the bees, and no more. Experiments carefully conducted under such covering ought to have some weight in deciding this question. Plants, under the abnormal condition of being in a greenhouse, or covered with cheese-cloth, would naturally be expected to fail in perfect fertilization in the natural way, and require the assistance of bees or man; but it is no evidence that such assistance is needed when in their natural condition.

In reading Mr. Doolittle's theory—that plants furnishing nectar require bees to fertilize them, while flowers that do not contain sweets do not require the assistance of the bees—I thought of some seeming exceptions; as, the honey placed so deep in the red clover, in the columbine, and other flowers that the hive-bee can not get at, and consequently do not visit them; and how often, when a boy, I have plucked these flowers and sucked the drop of honey contained low down in the end of the petals! And the corn-plant—how different in its manner of fructification from other plants? The "tassel" is the male flower containing the stamens with their pollen, which the bees often visit for both pollen and honey; and the "silk" is the female flower—the pistils—which the bees never visit. I here call attention to this, not for the purpose of continuing the discussion, but to note that beautiful and wonderful provision of Nature for fertilizing such a common and useful grain as corn. Each individual silk-like strand of the female flower is connected with each and every embryo grain of corn, and some of the subtle dust-pollen from the tassel must fall upon and enter into each and every thread-like strand of the "silk," and be conveyed in some occult way through the whole length of this silk, which is sometimes several inches or a foot long, to where the grain of corn is to be formed, in order to fertilize and make a perfect ear of corn. It is as mysterious as that other wonderful provision of Nature that enables a queen-bee to lay thousands of fertile eggs with only one meeting with the drone.

Pelee Island, Ont.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N. Y.

TRANSFERRING BEES, A LA HEDDON.

Question.—I have some colonies of bees I wish to transfer about the first of May, or during fruit-bloom, which comes about that time. Would it not be well to drum out one colony, having straightest combs and most brood, and give each of the other colonies transferred one frame of this brood after fitting it into frames, to help them, and put into the super of their new hive the honey they may have, to help them, as they will have no brood?

Answer.—By the tone of the question I should judge that what is known as the Heddon plan of transferring is to be used; that is, the bees are to be driven from their hives and hived in new hives, the frames of which are filled with foundation. If I am correct, Mr. Heddon never advised this plan of transferring, where the same was to be done in early spring, or before the hives were filled with bees and brood. With me, the time of fruit-bloom is just the time the bees are beginning to rush things by way of brood and a general preparation for the main honey-harvest; and if we transfer by the Heddon plan at this time we make a break in the plans of the bees at a time when we wish every egg possible, laid by the queen; and, if I am any judge of such matters, transferring at this time, and in this manner, may make all the difference with us between a good crop of honey and no surplus at all. Five hundred dollars would not tempt me to allow any man to transfer 100 colonies of bees for me in such a way in fruit-bloom, as I should then calculate that I should lose that much by so doing, in an average season. Our correspondent shows that he knows something of the worth of brood at this time of the year, in that he proposes to give each colony after the first a frame of the same. If one frame of brood is a good thing, five frames would be five times as good; and the old plan of transferring is the only one I would use when transferring in fruit-bloom, and the one I prefer at all times, unless the colony to be transferred has such crooked combs that it makes great labor in fitting them into the frames. I have always failed to understand the logic that clamors for the melting up of good straight worker combs for the sake of making the wax coming from them into foundation, fitting it into frames, and obliging the bees to draw it out, and add more wax to it in the process, that we might have only good worker combs again. If any wish to go through with this process, of course I have no objections; but I have often noticed that the very men who recommend such a waste of time to themselves and the bees as this are the very ones who cry out about the foolishness of beginners when spending a little more time than seems good to them in the pleasure and profit which comes from the manipulation of bees. Fruit-bloom is a good time to transfer bees by the old way; in fact, transferring at that time, where their own combs are fitted into frames, seems to give them renewed vigor, so that they make better colonies for gathering surplus honey than they would have done if left undisturbed.

SPACING FRAMES.

Question.—I think of spacing my brood-frames $1\frac{5}{16}$ inches apart. At present they are $1\frac{3}{8}$. My apiary consists of about 100 colonies. What do you think of the venture?

Answer.—Well, to be candid, it is a venture that I should not want to go into. If I thought I could see some gain in such close spacing, I would try it on, say, ten of the 100 colonies for a year or two; and then if it pleased me I would fix the other 90 in the same way. Here is something that so many lose sight of, and rush headlong into any project which seems good to them, using the whole apiary to experiment with, when they could try the experiment just as well with half a dozen colonies; and if the pet project proved a failure, as is apt to be the case four times out of five, but little loss would be the result; while such an experiment, carrying the whole apiary with it, often results in a loss hard to be borne. I really wish some one competent would tell us, in a logical way, what there is to be gained, in a real practical dollar-and-cent way, by this close spacing of frames, which seems to be a craze just now. I have carefully experimented for several years to find out whether I was wrong in using $1\frac{1}{2}$ inches from center to center of frames, that being the average, as I measure it, of combs built by the bees when they have their own way, and so far see no practical reason for changing to either a greater or less distance. If there could be artificial heat used, so that the hive could be kept warm enough for brood-rearing in any part of it during the spring months, then the case would be different from what it is where it is necessary for the bees to create the heat sufficient for brood-rearing inside of the *cluster of bees*, and not inside of the hive. To thus create and preserve heat inside of the cluster, the bees must have more space than for a single tier of bees between each range of combs. In my experiments I have found that far more brood will be brought to perfection, during the cool days of April and May, with 1¾ spacing, than there will with 1¼ spacing; but when we come to July weather, then the most brood will be produced with 1¼ spacing. But all know that, as a rule, one square inch of brood in May is worth ten square inches in July; and as we do not wish to be continually spacing our frames, we can not well adopt 1¾ for May and 1¼ for July, so I strike the happy medium of 1½ inches, and use the same the *whole* year through.

CONTRACTION FOR SWARMS.

Question. — At the Chicago International Convention some favored hiving new swarms on four or five L. frames to obtain the most surplus comb honey, according to the report of that convention. In so doing, is it necessary to fill the empty part of the brood-chamber, where comb foundation is used in these five frames, to prevent the bees building comb therein? Also, is it necessary to use a queen-excluder over such colonies?

Answer.—It will be necessary to shut the bees out of the vacant part of the hive while it is thus contracted to four or five combs, otherwise the bees will build comb in this vacant space in preference to going into the sections and working there, for it is more natural for bees to fill up the apartment where the queen presides, rather than to go into separate apartments, away from her. In fact, bees will store more surplus honey in an apartment with the queen, if that is large enough to accommodate them, than they will in any other way; and the object of contraction is for the purpose of compelling the bees to enter the many surplus apartments made by the different sections. The best thing I know of to fill up this vacant space at the sides of the four or five frames given is what are termed "dummies." After you are satisfied regarding the number of frames you will use, then make dummies out of thin lumber, so that one on each side of the frames used will exactly fill up the room. This is easier than to use a number of division-boards, although the latter will answer the purpose, but will require more labor in handling. You will also need to use a queen-excluder, for in a contracted hive the queen is quite liable to go up into the sections and deposit eggs, which the bees will nurse into brood; and brood in sections is one of the most provoking things that ever confronts a bee-keeper.

[We have recommended the Heddon short way of transferring considerably of late; but we were not aware that we or any one had advised that good combs should be destroyed; but the combs in box hives, and in frames from farmer bee-keepers, have been so crooked, as a rule, that it has seemed cheaper not to fuss with them, saving only those that were good and true. In advising this short method we have generally recommended its application *after* the honey-harvest, because at that time it will cause the least disturbance. When the old way is to be followed we recommend fruit-bloom time.

Regarding spacing, we have never recommended the 1¼ inch, because that seemed too close; but we have invited free discussion for the purpose of getting more light. The 1⅜-inch distance is what we recommend; first, because we secure better combs, just as much worker brood, less drone brood, and because the majority of bee-keepers are using it. Another fact to be observed is, that many have changed from 1½ to 1⅜ inch; but we do not recall any one who has changed from 1⅜ to 1½ inch. When we had 1½-inch spacing in our apiary we were always bothered with combs bulged at the top during the honey-harvest. By the 1⅜ spacing, and fixed distances, we have combs that are like boards over the entire surface.—ED.]

Heads of Grain FROM DIFFERENT FIELDS

A correspondent from the far North wants me to give in GLEANINGS my preference as to separators, tin or wood, also for 1 or 4 piece sections, with reasons therefor.

If you nail on a wood separator, when the wood shrinks and swells, the nails holding it to place, it must curl; whereas if it lies loose in place, simply held there by being squeezed, then it can come and go and still lie perfectly flat. So I never would nail on a wood separator, but let it be loose. A tin separator will not curl sidewise, like the wood, no matter whether it is nailed or loose. But it is inclined to shrink endwise, if I may use such an expression—that is, it will assume a wavy form; and to prevent this a tin separator must be stretched taut, and nailed. So I would say, if a loose separator is to be used, let it be of wood; if a nailed separator is to be used, et it be tin.

I prefer a one-piece section because cheaper and because the bees will put less glue on the bent corners. C. C. MILLER.

Marengo, Ill.

HOW TO SETTLE THE GLUCOSE PROBLEM.

Would you please tell us for what purpose glucose is manufactured? Has it any real legitimate use? If it is, as I understand it, used only to adulterate molasses, syrups, honey, and the like, why is its manufacture permitted by the government? If it would be unconstitutional to stop its manufacture, would it not be possible for the combined efforts of the bee-keepers and their friends to succeed in having revenue tax placed on the manufactured article. This would increase the price to the ɩtent that it could not be used profitably for ɩe purpose of adulterating. In detrimental fects it certainly ranks next to distilled liqɔrs and tobacco, and has, I believe, no more ɘdeeming qualities than either of these, and ɩould be as much subject to taxation. This ould be a good scheme for the honey-producer, ɩd a jolly scheme too. What think you?

Franklin, Pa. **Ed. Jolley.**

[Yes; as we have intimated recently, the ɩortest way around this glucose problem to suppress its sale or manufacture, if it is ɘver used for any honest purpose.—Ed.]

OUR GLUCOSE POLICY INDORSED.

I want to give you a word of encouragement regard to your course in the glucose-honey ɩsiness. Rest assured you have the hearty ɩpport of all honest bee-men the country over. et your motto be, "Let no guilty one escape." Vhile it is sad to think that any one with inɩence and position should be found with even ɩe "appearance of evil," it is encouraging to ɩow of the healthy sentiment of bee-men in ɘneral on the question. **C. A. Hatch.**

Ithaca, Wis., Apr. 9.

ARTIFICIAL QUEEN-CELLS; A NOVEL IDEA.

I have raised some hundreds of queens this ason by Fooshe's drone-cell plan; but ocɩsionally suitable drone comb was not availɔle, in which case I would procure a sheet of ɩick worker foundation and cut it into strips ɔout ¾ in. wide. I would attach these, three four sheets, to a bar, and at every third cell ɩnch a hole about ⅜ in. deep, with the end of stout pen-holder or other conical stick. These ould then be manipulated exactly the same as oolittle cups, and accepted just as readily by ɩe bees. There is no fussing with melted wax ith this plan, and fine strong cells result, which e very easily detached from the stick. A rge number of cells can be prepared in a short me. **H. L. Jones.**

Goodna, Queensland, Aus., Feb. 16.

[We were interested, not so much in the artiɩial cells as in the fact that you made drone mb *a la* Fooshe a success. We knew Mr. ɔoshe made it work, but till now we had seen reports of any one else doing so. How is it, ɩeen-breeders?—Ed.]

CANDY FOR SHIPPING QUEENS; HOW THE ATCHLEYS MAKE IT.

I see on page 57 a caution offered by T. J. ugdale. After reading his caution regarding ɩe kind of sugar, etc., I see the editor calls r me as a witness. It is the XXXX, or conctioners' sugar, that I use altogether for ailing queens. Almost any kind of sugar will for a short distance, say when queens are ɔt in transit more than 48 hours; but for long stances *nothing* equals the finest grade of ɔnfectioners' sugar; and when the candy is operly made it will keep soft and in good shape as long as there is any of it left, or for a long time at least. I had one customer write me one year after he had received the queen, and the candy was still soft and in good order. Candy should be made so that it will appear tough, or, when you pull it, it will hold together somewhat like wax; then it seems to hold moisture. It should be thoroughly kneaded, and the sugar ought to be damp, or the candy should be made in damp weather, as the sugar gets so dry and hard in dry weather that it is very hard to get the honey and sugar thoroughly mixed; but if the sugar is steamed a little, or made in damp weather, the honey and sugar will congeal; otherwise it is very hard to get *good* candy, as the hard dry sugar will not dissolve as it should. This is why I say it is hard to get *real good* candy every time. It is no trouble to get candy that will be good to ship queens to any part of the United States or Canada; but when they are to be 30 to 40 days in transit, and going through different climates, it means something to get a candy that will keep good. I gently boil and skim, or use honey from the solar wax-extractor, as this honey is not so apt to candy.

Beeville, Tex. **Jennie Atchley.**

[Yes, indeed, it *is* hard to get *real good* every time.—Ed.]

YELLOW JASMINE, POISONOUS.

I note what was said in your paper lately about yellow-jasmine honey being poisonous. I am well satisfied that new jasmine honey is poisonous, not only to human beings, but also to bees. I base my conclusions as to bees being poisoned by it from ten years' experience here in Florida. Every year during jasmine blossoming, our young bees are found crawling out of the hive and dying about the entrance. We never see them doing so at any other time of the year. It is a common opinion here that jasmine honey should not be used till it is sealed over; and I am inclined to the opinion that it is better not to use it till capped.

Lake Helen, Fla. **Geo. W. Webster.**

THE ITALIAN BEE.

Many men of many minds,
Many bees of many kinds;
Some are bad, some are worse,
Some a blessing, some a curse;
Some will work without excuse,
While some are of no special use.
But very rarely do we find
All virtues in one bee combined.
Such is the case, though, with the breed
That now is taking fast the lead;
For th' Italian bee no rival knows
In any breed that nature shows.
To give a special virtue to a bee
Is what some do, as you see.
Th' *Italian* is itself possessed
Of *all* the merits of the best.

Columbus, Wis. **Super Lifter.**

WHISKY AND STINGS.

I have been among bees little or much from a boy; have been stung most severely many times, without feeling much ill effect but once. Some 15 or 16 years ago I was stung by a single bee on the back of my head, just under my hat, and in a few minutes I was swollen from head to foot, with great blotches on the veins of my arms and legs. It was a warm day, but I had to go to bed and cover up to keep warm. I was losing strength fast—extremities getting cold and numb; after trying all and every thing we could think of, with no benefit, I thought to try whisky. I drank nearly a teacupful, and in half an hour I was all well again, and felt no ill effects whatever. S. Smeed.

Walterville, Oregon.

[Whisky should never be used except as a last resort.—Ed.]

I was very much interested in an article on page 713, 1893. The article is entitled, "Serious Results of a Single Bee-sting." I have often been seriously ill from the effects of a single sting. I have had spasms once: and only a year ago last winter I was stung and obliged to go half a mile to obtain medicine. While taking it I became unconscious, and remained so for some little time, and did not recover wholly for nearly two weeks. Although I am a Prohibitionist, my remedy is a strong dose of whisky or some other strong liquor. It has saved my life a good many times. A sting seldom affects me seriously unless it is inflicted on a vein, and I never take the liquor unless I feel the poison working toward my heart; then I take one poison to kill the other. I am intending to give up bee-keeping, as I feel that the risk I am running is too great. A. M. Ward.

Newhall, Cal.

DOVETAILED CHAFF HIVE; 8-FRAME HIVE.

In the fall of 1892 I went into winter quarters with seven colonies. Two of these were in Dovetailed chaff hives covered only with the regular hive-cover, and left on the summer stands. During the winter the snow blew in and clogged one of the entrances, and the bees died. The other I managed to keep open, and it fared well. I think that the Dovetailed chaff hive is a good wintering hive if the frames are covered with a cushion, and the telescopic cover used.

The other colonies were in single-walled Dovetailed 8-frame hive. I packed them in a large box, and used dry leaves for packing, which always kept very nice and dry. I had three openings to the north and two to the south, and find the south side the best. These colonies all wintered well. I am of the opinion that nice dry leaves are as good and cheap a packing as any one would wish to use.

The honey-flow was very poor in this locality the past summer. My 7 colonies I increased to 11, and got only 75 lbs. surplus honey, and all colonies gathered enough for the winter. Mos of my neighbors who keep a few stands of bee did not get a pound of surplus honey. Ther was no yield from white clover, as most of i had been winter-killed; but there is a goo stand of young clover for next summer.

As to hives, I will say that the Dovetailed 8 frame hive is the best hive here, and I think frames are just about right. Last spring I ha to take a frame or two out of several of m hives. These were completely filled with nic sealed honey. These I replaced with frames o foundation, in order to give more room fo brood-rearing. I did this about the time o fruit-bloom.

The new Hoffman frames with V edge ar good, and I found no trouble in handling them The bees build a few brace-combs, but not many and as to the bottom-bar, I find no differenc between the narrow and wide. So you see should not like to see the frames materiall changed unless they could be improved.

Roselle, Iowa. Dec. 14. I. W. Hoffman.

AGREES WITH DR. MILLER ON THE T-SUPE QUESTION: IN HEAVY SEASONS THE THICK TOP NOT PROOF AGAINST BRACE-COMBS.

I prefer the T super, and can honestly co roborate the statement made by Dr. Mille page 190. My frames have square top-bars, by 1⅛ in., and made on the same plan as yo new frames; end-bars 1⅜ in. scant, but I fi they are not proof rgainst burr and bra combs. When the honey comes in rapidly t bees will build them fast to the super, and Dovetailed hives too; but when the honey gathered slowly they are a success. I fi them superior to the old narrow top frame though, because the narrow space between t super and hive does not permit the storing much honey. About the only inconvenience experience is the scraping of the bottom of t sections. By using bee-escapes the bees nev fail to clear up the honey on the bottom of t super before leaving it. I can not see any a vantage, though, in favor of the ⅝-inch-de top-bar over the way you made it. They a all proof against brace-combs in ordinary se sons. Last year was an excellent season, ho ever, my best colony storing 75 lbs. of com honey. J. L. Mulford.

Lebanon, O., March 29.

[We do not know that we ever had a repo before, showing that the thick top bars, wh 1⅛ inches wide, and spaced 1⅜ in., were n proof against burr and brace combs; but v have had plenty of the other kind. In Mr. M. case we should say that there was somethi the matter with the bee-space *above* t frames.—Ed.]

I would rather lose all my bees in winteri than have foul brood among them.

Grantsville, Md. J. E. Hershberger.

[Yes, so would we.—Ed.]

GLEANINGS IN BEE CULTURE
A Journal devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
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The blind receive their sight, and the lame walk, the lepers re cleansed, and the deaf hear, the dead are raised up, and h poor have the gospel preached unto them. —MATT. 11 : 5.

We have in our apiary a queen purchased f the Atchleys, whose bees are actually five-anded. Two-thirds of the so-called five-band-d bees show only three or four bands—at least, ost of those we have examined failed to show ny more than the fourth band.

Our large Boardman solar wax-extractors are usy at work on sunny days, rendering up old ombs. They are doing so well that we shall ut more of them in the yard, more especially assist the wax-room in rendering back to ood wax what we call "water-soaked wax."

We thought at one time last fall that we ould run out of basswood lumber; but we ow have plenty of it on hand, although we ave had an extremely heavy run on sections is year. The dry and beautiful spring, with s good roads, enabled the farmers to bring in e logs, and hence the lumber.

Reference was made in our March 15th sue to the fact that we were working on a ew edition of our A B C book, and that we ared the old edition would be exhausted be-re we could get out the new one. Some in-uiries have come as to when the new books ould be ready. From present indications, not efore the first of December next.

As we were looking over the bees this spring e noticed that cushions under tin covers were amp near the top side, while those under wood overs were dry throughout. Metal is a con-uctor of heat and cold; and the warm air nder the cover, being heavily charged with oisture, coming in contact with the cold met-, would discharge its moisture and thus wet e cushion.

We have been having some beautiful warm ys; and in the corner of the evergreens, when e sun was shining brightly, we noticed the es flying stronger in this portion of the apia- than elsewhere. Why? Because those great g trees broke the force of the cold breezes om the north and west, and made this part of e inclosure the warmest part of all outdoors out the Home of the Honey-bees.

It is with much regret that we announce that r. S. Corneil, one of the leading bee-keepers Canada, died suddenly on the 7th of last onth. He was working in the garden, and as found there dead. Mr. Corneil was a very thusiastic bee-keeper. Though not a pro-ic writer his articles were written with care, and were devoted principally to scientific research; and, although not pretending to be a scientist, he was pretty well up in all that pertained to it, especially regarding germ-life.

We wish to repeat what we have said a number of times before, that it is folly to send old comb a distance by express or freight to have it rendered up by your foundation-maker. There is not enough wax in the stuff to warrant the expense; and then the foundation-maker is annoyed because it usually comes right in the height of the season, when he does not wish to bother with rendering it up, dirtying up his tanks, etc. But unless it is rendered up very soon it is very liable to be worm-eaten and ruined. We have decided that we will no more accept such comb when sent us. A far better way is to render it in a solar wax-extractor at home, and then send the pure wax to your foundation-maker. There is no use in paying transportation charges on dross.

At this date, April 23, our colonies are all alive. They went into winter quarters exactly 106 in number, and came out this spring exactly 106, so that we have not had to unite. A while ago we stated that the number was 125; but our apiarist says the exact number is 106. This seems like a small number; but as we advertise and sell nuclei and full colonies, our stock of bees is reduced down to about 100 every fall, and increased to about 200 during the fore part of the season. In this number of 106 was one colony under a sealed cover, and it wintered just as well as the rest under absorbing cushions. Indeed, our apiarist thinks it has wintered a little better than any of the rest. Yes, we shall keep on trying sealed covers, but we do not advise any one else to do it unless he is perfectly willing to take the consequences.

SPONGE FOR WATER BOTTLE FOR QUEEN-CAGES.

On page 284 we referred to the use of a sponge, to stop up the water-bottle in queen-cages, as being a valuable idea. At that time we had overlooked an editorial in the *Review*, which reads as follows:

> Years ago, when I was using a water-bottle in queen-cages, I stopped the mouth of the bottle with a cork made of a piece of sponge. If the sponge is of the right size it does not slip out, neither does the water run out nor evaporate too rapidly, yet it is furnished to the bees at all times on the moist sponge in the best possible manner. This plan was a success in every sense of the word.

Although, years ago, we used the sponge for holding the syrup itself, we did not use it as a plug to the bottle. The Good candy was a great improvement over the hard candies that had been used in queen-cages heretofore, but it was a mistake, we believe now, to drop the water-bottle, particularly for long distances. We shall certainly give it a trial this coming season.

FROM a private letter we learn with regret that Dr. Miller has been in "bad shape," so far as his health was concerned, and that "the doctor threatened to stop all mental labor, from danger of brain trouble." This is unwelcome news to us, and we are sure it will be to our readers. We are glad to learn, however, that he is on the "up grade," and we trust his wonted activities through the journals will continue. Dr. Miller has been doing a large amount of work in Sunday-school and other religious lines, besides his general correspondence relating to bees. Say, doctor, prescribe for yourself a bicycle, and get, along with it, a new lease of life.

DEATH OF J. M. SMITH, GREEN BAY, WIS.

WE learn from the *Ohio Farmer* that the great gardener—in fact, one of the greatest gardeners the world has ever produced—departed this life on the 20th of last February. He died in the harness, although his death was rather sudden. Several questions in regard to his favorite industry were left unanswered on his table. While we lament the loss of one of our great teachers, we rejoice that he left a family of boys (I do not know how many) who are almost if not quite able to carry on his gardening operations as well as the father himself. God grant that they may be able to teach and write intensive gardening as did their father.

HEDDON'S HONEY.

IN the closing paragraph on page 335 we by no means intimated that Mr. Heddon could not occupy further space if he had *important testimony* to bring forward; and right in this line we are pleased to announce that he has finally submitted to us the "original manuscript" of testimonials from men who purchased his honey, nearly all of whom speak well of it. These testimonials are filled out on printed blanks that Mr. Heddon placed before his customers, and are in answer to a series of questions.

Now, it *seems* to us we have given Mr. Heddon not only a fair hearing, but the advantage of his strongest points in rebuttal of the analyses; but if Mr. H. thinks we have not, we have decided we will go one step further: We will allow him the space of one page of GLEANINGS to bring up any other or new points (i. e., any thing that will explain how that large amount of glucose got into the honey he sold to us and to his customers), over his own signature. Certainly Mr. Heddon could not ask more than this. After this we hope it will not be necessary to prolong this matter further.

TOMMY STRINGER.

THE items regarding Tommy Stringer, in this issue, were taken from the Seventh Annual Report of the Kindergarten for the Blind, located at Jamaica Plains, Mass. I omitted to mention that Tommy speaks some words and a few sentences quite distinctly. The tones of his voice are pleasing, and there is no doubt but that he will soon speak and talk readily. He is very much interested in making garden, and he watches with most intense delight some peas which he planted. He waters them and takes care of them. Just think of it friends—how should he know the weeds from the plants? When the peas were grown he gathered them, and ate them after they were cooked, with a delight, no doubt, that you and I can hardly understand. So far as I can gather, there is still need of help in the way o funds to finish his education. Here is something I want to quote, from the *Sunday Schoo Times*, that has a bearing on this matter o child-training:

> Says Dr. Stanley Hall: "The most honest and unembarrassed child's first answer to a direct question as, for example, whether it has seen a cow, shee etc., must rarely or never be taken without carefu cross-questioning." Nor must such cross-questioning lead the child to suppose that he is mistruste The questioner—teacher, parent, companion—mus rather mistrust his own power of interpretatio He must sharpen his wits and quicken his sympathies in order to do justice to his most delicate o subjects— a child's soul.

A FEW FIGURES SHOWING THE AMOUNT O GLUCOSE USED IN THE UNITED STATES.

ON the night of April 12 there occurred on of the greatest fires that ever took place i Buffalo, involving a loss of about a million o dollars. It was none other than the extensiv glucose works of that city.* Several years ag the extent of this Buffalo glucose-factory wa measured by the daily consumption of 5 bushels of corn; but just prior to the fire th capacity of the works involved the daily consumption of over 20.000 bushels, in Buffa alone. Employment was furnished to upwar of 400 men, who received annually in wage over $200,000. The enormous steam-plant run the factories consumed 150 tons of co daily, and the product of the works average *70 loaded freight-cars*, or *840 tons of freigh* The company had invested a million and a ha of dollars, in part represented by four oth factories, located in Peoria, Ill., Leavenwort Kan., Iowa City, Ia., and Tippecanoe City, While the Buffalo concern represents the largest, there are other independent glucose-factories all over the United States.

While it is no doubt true that glucose is use principally for adulterating syrups, it would folly for bee-keepers to go on the assumptio that there is so little of it used in honey tha we had better keep still, because, forsooth, might prejudice our pursuit. If glucose is n used for any thing but adulteration, then w shall always use what little influence we hav toward bringing about the time when glucose factories shall be considered illegal becau inimical to the public health. If it were wholesome product—if it actually added some thing valuable to our food products, that wou another question; but it contaminates any ing it has to do with. It brings down the ality of other goods, and we are sure it inres digestion.

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* We get these facts from the *Buffalo Express* April 13.—ED.

It would be a very interesting problem, for me one well skilled in political economy, to certain how much legitimate labor is disaced in our country by the daily dumping of) tons (to say nothing of the output of other ctories) of glucose on our markets, hardly an nce of which comes to the surface under its ie name. We have no doubt it would exceed any times the labor employed in producing it. s an enemy to labor, it seems in all essential spects to be on a par with the brewery and stillery.

GIVEN FOUNDATION MADE FROM ROLLS.

After making some experiments with the ven foundation-press we have finally come to e conclusion that *if* this foundation is softer, d more readily accepted by the bees, than e ordinary roller foundation, it is due to this ct: The side walls are made very thick and avy, so that the surplus of wax is crowded to the walls, without any excess of presse. With this fact before us we constructed a ill having extra heavy walls, and, to our eat delight, the foundation from it seems to very much softer because the excess of wax, stead of running out into long sheets, went to the walls. An ordinary sheet of wax, after ing passed through this mill, increases in ngth only about 33 per cent of its original ngth, instead of, as heretofore, from 200 to 300 r cent. Whether this foundation is as soft as iat from the press, can not be definitely prov- just yet; but from present indications it is lly so. From some tests we have made, the es seeem to accept it very readily. In our ext issue we hope to report further in regard it; but at present we fear that this very soft undation would give trouble on hortizontally ired frames, because it has not strength iough to prevent it from buckling, unless. ineed, it is made excessively heavy.

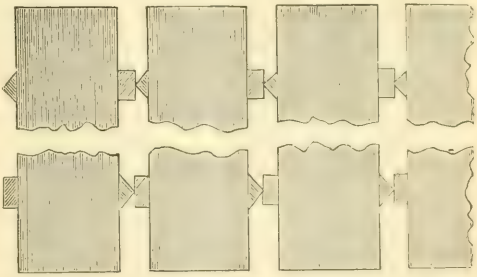
TRADE NOTES
BY EARNEST R. ROOT.

THE NEW TOP-BAR

Nov. 1, p. 831, 1893, Mr. J. A. Scudder describ- an improvement in top-bars that he had iade for him especially, and also sent us a imple. The improvement related particularly the end of the top-bar. He recommended iat they be 1⅛ inches wide; but such width ould make it inconvenient to handle, unless ie *end* of the top-bar could be narrowed down of an inch. In our footnote we acknowledged ie improvement; but on account of the exense of making this change we did not see how it was possible at that time to send out frames that way. There have been so many calls of late that we have finally constructed a special machine to do the work, so the frames shall not cost any more than the old style; and we now send out our thick-top frames of this description. An illustration of it will appear in our next issue.

THAT V EDGE TO HOFFMAN FRAMES.

Some few bee-keepers object to the V edge of the Hoffman frame, more, it seems to us, on theoretical grounds than because they have used them alongside of Hoffman frames with end-bars whose contact edges are square. When we first introduced the Hoffman frame we likewise objected to the V edge, and for the first year made the frame with the edges square. Indeed, we placed in the neighborhood of 80 colonies on such frames. As the season wore on, we began to see that the square edge had a disadvantage in that the propolis would in time accumulate on the two opposing surfaces, and gradually increase the spacing between the frames. The following season we introduced alongside of them frames having V edges, the V coming in contact with a sqnarge edge. As propolis began to accumulate we found that it did not increase the spacing, because the V edge would push the propolis on either side—that is, it would divide or cut it like a knife. During warm weather, propolis—especially if new—is soft; and every time the V edge crowds against the square edge, the point comes close in contact with the blunt edge. Again, V-edge frames separate more easily than those having only square edges.



"But," you say, "the square edges would be all right provided you wedge them up." Well, during that first season's use of them on 80 colonies we tried the wedging feature; and while it remedied the trouble some, it was unsatisfactory. We then tried thumb-screws, but finally gave these up. Well, we now use and recommend Hoffman frames having a V edge like the one shown in the accompanying diagram. In connection with them we use a division-board, but no wedge, thumb-screws, nor any thing of the sort; and we are firmly convinced that Mr. Hoffman, the introducer of these frames, who has used them for so many years, is pretty nearly right, on the V edge.

NOTES OF TRAVEL
—BY A. I. ROOT.—

ON THE WHEEL, APRIL 17.

I paid a visit to the farm of Jordan & Johnson, mentioned once or twice last season as having extensive celery and onion grounds near Creston, Wayne Co., O. Some time during the winter the two members of the firm paid me a visit, and we talked together concerning the matter of plant-greenhouses, plant-hotbeds, and cold-frames, all to be heated by steam when steam is needed. As they grow early celery largely, it was getting to be quite desirable that they have a convenient arrangement or arrangements for growing the plants. We talked about running steam through tiles, about sub-irrigation in the greenhouse, as recommended by our Ohio Experiment Station, and all these things pertaining to this new industry. I had never given my Victor Flyer a trial on an extended trip, and I was agreeably surprised to see with what ease I made the first nine miles in just 40 minutes. Some of the roads were quite rough, even then; but the little Victor has a way of bounding over roughness, especially where you have muscle to make it "fly;" and I was greatly pleased, too, to find that my second wind came in unusually soon, and that my muscles had lost nothing during the winter's rest.

Before I reached Creston I was pleased to see cloth-covered cold-frames on the south side of quite a few residences. These cloth-covered frames were on the plan given in the tomato-book. It illustrates the pleasant fact to me, that, when any sort of industry gets a foothold in a locality, the people round about are ready to "catch on" and make use of new and improved methods of doing things.

When near the premises mentioned, my eye was attracted by so neat an arrangement that I turned the wheel in at the roadway up near the hot-beds. The beds were four in number, and perhaps 50 feet long. They were on the plan I have given, side by side, with just room enough between them to walk through in handling the sash. But what attracted my attention particularly was, that the sides of the beds were raised up as much as 3 feet high on the back and perhaps 2 feet in front, and they were made of drop siding nailed to stakes. This makes a nice, tight-looking job, secure from the weather. Then these beds were all painted a bright red. You see, this is a very durable paint, and it is dark enough to attract the rays of the sun so as to warm up quickly. Of course, I was interested and delighted with the appearance from the outside; but when I peeped over and saw the bright dark-green rows of Prizetaker onions that filled every bed with a perfectly even, regular, thrifty stand of plants, such as I think I had never seen before, I was full of enthusiasm. This neat little plant belongs to Jordan & Son. The "son" is the younger brother of the one I have mentioned before. These four plant-beds are warmed by a little horizontal boiler in a building on the north side of the beds. A single pipe runs the length of each bed and back again. If I remember correctly it is 1¼ inch, and is about a foot distant all the way around from the drop siding before mentioned. I soon discovered why the sides of the beds were so well up. It is to make room for the steam-pipes just mentioned. The beds that hold the plants are an inch or two above the pipes, and there is, I should judge, a two-inch space between the sides of the bed that holds the dirt, and th drop siding. This permits the air to circulat all around the bottom and sides of the plant bed, and the most severe frost would not ge through the drop siding and extend over to th sides of the bed holding the plants.

I was soon introduced to the father alsc Neither father nor son had had any experien with Prizetaker onions, with the new metho of transplanting; but the father gave us a rea son for feeling sure they would succeed wit their enterprise. Last fall he was travelin through Michigan, and while walking throug one of the towns he saw a quantity of beautifu large onions, evidently Prizetaker. He stoppe and made inquiry.

"Will you please tell me, sir, where you gc those beautiful onions?"

"Why, a boy who lives near here raise them. He started the plants in a hot-bed, an then planted them out in the field."

"Can you tell me just how many it takes t make a bushel?"

"Well, stranger, that is just exactly what was thinking about. I brought a peck measur and we'll get at it and count them."

They found that 28 onions made a peck; an without very much selection they could easil find 100 that would make a good plump bushe A few figures soon decided how many bushe of such onions should be raised upon an acr This is theory, I know; but our good frien Jordan was not long in taking steps to make th theory fact. His beautiful ground made possible to prepare the soil and lay out the bec with mathematical precision. The brighte thing of all his undertaking was to hunt up th boy who raised the onions, and bring him dow into Ohio and set him at work; and it was th *boy* who bossed the whole apparatus that ha pleased me so much during my whole hal hour's stay. By the way, friends, there is point right here. Notwithstanding the thou sands who are out of employment, the world clamoring for capable men and capable boy Let any boy go to work and learn how to do a most any thing *skillfully*—even raising onions and somebody *wants* him. Why, he is want to boss and direct the hundreds of carpente farmers, gardeners, and others who can n live unless they have a boss. Are *you* one that sort, my friend?

Before I left I was desired to give figures c several thousand crates to hold the handson onions that they were *going* to have. We they counting their chickens before they we hatched? I think not, to an unreasonable e tent. Father and son together, with th Michigan boy, can hardly make a failure. Yc see they are used to raising onions in the ord nary way; and I presume they have seen th way in which I manage to raise Prizetaker for I am only an hour's ride (on a wheel) awa from their plantation. Well, I was pretty we satisfied with this part of my visit. The muck roads were almost too soft just then for m wheel and so I walked along to the large pla tation, and we chatted by the way. Su enough, there was the greenhouse that ha materialized since I had the talk with the pr prietors some time in February. Oh what bec of "living green" met my eye! and then wh beautiful boxes of thrifty plants! The people work on a little different plan from m own. Their greenhouse is 20x100. There is walk in the middle, and a walk clear aroun the outside; and the great beds, some seven eight feet wide, were all occupied in raisin seedling celery-plants. These seedling-plan are then transplanted into movable trays boxes. These are of such size that I should sa four of them can be placed under an ordina ash. This would make the dimensions of the ays about 3 feet by 18 inches. The translanting is done by women, inside of the greenouse. They sit down at a table, or stand up, s they choose, and set out the plants at so uch per thousand. Yes, and some of them ake over a dollar a day when the price per *ousand* is only *two and a half cents.* What o you think of that? Over 40,000 plants taken om the seed-bed, and successfully transplantl into the trays, for a day's work! The trays e filled with beautiful swamp muck mixed ith well-rotted composted stable manure. Afr they have begun to root they are hardened by tting them in beds covered with cotton cloth. uring a blizzard like one we had the last of larch, glass is used in place of cloth, on very nder plants; and, besides this, steam-pipes n under all the beds so they can, on an emerency, ward off the frost or freeze, by steam derneath the boxes, as well as glass or cloth erhead. With enough steam heat, it seems me that cloth might answer very well in ace of glass.

The proprietors soon found out that, to run is quarter of an acre of plant-garden, requirl an engineer, or manager, of no ordinary ility—somebody who really liked the job of atching the steam, watching the clouds, and atching the rain, and, above all, watching e thermometer, barometer, and Weather Buau signals, in order to anticipate any sudden anges. I was introduced to the man, and ughingly told him he was working out the ry problem I gave in the tomato book; mely, how to support a family on a quarter an acre of ground. Well, this quarter-acre ght to support a family in pretty fine style; d my friend remarked that, when it came to ving one man do all the work on a quarter of acre, he guessed he would need a wife to lp, and a goodly lot of children besides; and metimes it would make the whole crew fly ound pretty lively. Well, this plant-garden certainly the finest and handsomest thing of e kind I ever came across. Why, there was thing in the whole line of horticultural disays at the World's Fair that could compare th it, in my estimation. This was a real live actical hive of busy workers and magnificent sults. Too much that we saw at the World's ir was only *make believe* business. The ant-beds inside of that greenhouse were tered by sub-irrigation. The wooden beds re made water-tight with water-lime cement; en rows of tile laid crosswise of the bed were aced, I should say, about every five or six t. These tiles lie right on the cement botm of the bed. In fact, the joints were also mented around the lower half, leaving the cks open on the upper half; then the end tile each row was brought up on an angle so it sted on the side-board of the bed, making convenient to run water into each line of e, with a hose. They were enthusiastic in aise of sub-irrigation. You see, the celerynts need never have their leaves and stems tted at all; and where they grow as thickly I saw them, there would be considerable nger of rotting if every thing were soaked th water.

n order to see how their machinery would rk they have grown a few cabbage, tomato, d lettuce plants; and the wife of one of the prietors had also tried her hand at raising wers. Her trays of little plants with variegated foliage made a most beautiful supplement to the beds of living green I have spoken before. These men have indeed put a pile money into this apparatus for raising plants; t they have not gone into it recklessly. They ve been working and experimenting for several years, and all their plans seem to be the outcome of regular methods, step by step. The boiler that warms the greenhouse and plant-beds also works an injector pump that throws water into a tank; and long lines of pipe were just then being laid away out in the distance, through the mucky fields, in order to give them water handily when the plants are moved from their tidy cloth-covered cold-frames to the outdoor air of the middle or latter part of April. Oh glorious April! glorious and beautiful expanse of soft black soil, as smooth and level as a floor. A bystander informed me that, four or five years ago, the scene of this wonderful activity was nothing but a swampy bog where people sometimes went out to gather elderberries. Of course, these men were laughed at and joked about because they insisted that this black mucky swamp could be made *good for something.* Intelligence and genius have made the change. If it were only possible to get a camera that would catch the shades of green, how I should love to give you a picture of that plant-bed establishment! By the way, when something was said about the expense of the cotton-cloth covering, Mr. Johnson informed me that they got their cloth by the quantity at only 5 cts. per yard. Of course, this is only a yard wide; but when sewed together in the middle it cost only 10 cts. In the tomato-book I believe I mentioned the price as being 20 or 25 cts. per yard. Well, this latter is stronger, and, besides, it is 2¼ yards wide. This extra width is so that it may allow the pole on which the cloth is rolled up to drop down over the front end of the bed. Well, the beds we saw were all of them planned to take either sash or cotton cloth; and by having a strip of board on the top edge they managed to use cloth only two yards wide. The question might come up about cloth being cheaper than boards; but I presume their heads were "level," for they have made this thing their business and study.

Yes, they too have experimented a good deal with fertilizers, and they showed me some tomato-plants that were dosed with nitrate of soda. Sure enough, those that had the nitrate of soda were of better color, and a stronger and more robust growth than some other boxes that did not have any. But, wait a bit. They put on so much nitrate that it killed part of the plants, and these boxes were, therefore, not as much crowded as the others. Again, some boxes that had stable manure put under the muck soil made a better show than any of them. I feel pretty sure, however, that nitrate of soda does, on some soils, prove to be a fertilizer for tomatoes.

After I had gone about three miles on my way home I passed a hotel. It was after my usual suppertime. I should enjoy my ride very much more with a good supper than to get it after I got home. It is a good thing to learn to practice economy; but I think we sometimes make a mistake. If I were to eat such a supper as nature called for, just then, after I got home, it might not "set well." But if I were to take it then, and ride nine miles afterward, I knew from past experience that the supper would be all right, and I could eat just what I pleased, and as much of it. I wonder if there are any dyspeptics among my readers who would give a whole half-dollar to be able to eat a good square meal, and eat just what they like, regardless of consequences.

Another thing, people can not very well keep nice hotels unless they have encouragement by way of patronage. A man may be too lavish with his money, and on the other hand he may be too parsimonious. If one never patronized his neighbors who are in business, we shouldn't any of us get along very well. "Every man to his trade and calling" is a pretty good rule, and I think we ought to enjoy patronizing our neighbors when we need what they have for sale. I thought I needed something they had for sale at that hotel. As usual, my first longing was for the pitcher of milk and plate of bread. Then I was ready for the nice steak, potatoes, fried eggs, and a nice dainty piece of fried liver. I think I have heard somewhere that liver is not fit for human food; but I feel in many such matters a good deal as Prof. Cook did. Somebody demonstrated, by scientific methods, that ensilage is not a fit food for cows. On giving the cows a chance, however, to express an opinion on the matter, they disagreed with the scientist; and I thought that night that that nicely cooked liver was a most delicious food. What a supper I did have! and after my nine-mile ride home my digestion was as perfect, and my sleep as sound, as that of any baby boy after he has had *his* supper.

OURSELVES AND OUR NEIGHBORS

BY A. I. ROOT.

And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul.—GEN. 2: 7.

Some little time ago the readers of GLEANINGS made a contribution in response to a call from Helen Keller for Tommy Stringer, another deaf, dumb, and blind child, living in the State of Pennsylvania. Our older readers have the matter fully in mind, no doubt. But it may be well to explain a little for the benefit of the later ones. By the way, it was my good fortune to be present at one of these kindergarten schools for the deaf and dumb while at the World's Fair. The part that interested me greatly was the methods of teaching deaf and dumb children to talk and hear others talk. Perhaps I should say *understand* others instead of hearing them, for they do not *hear* a word. It was almost impossible to believe the teacher's statement that these children did not hear a word. It was not long before I suggested testing the matter by turning off the electric lights some evening when they were talking and visiting as only children can talk and visit. The teacher informed me that the thing had been done repeatedly to convince the skeptical. Of course, the deaf children could keep on talking, but none of their comrades caught a syllable after the lights were cut off. I was asked to talk with them; and as I put out my hand to a bright little fellow, and said, "Can you really talk?" he responded at once, "Oh, yes!" and when I told him my name he repeated it after me just as any child would who could hear perfectly. This is all accomplished by cultivating that marvelous power of judging by the motion of the lips, mouth, and face what the speaker is saying. When I reverted to the matter of Helen Keller, the teacher said at once, "Mr. Root, you must not expect to find any more Helen Kellers right away. She is not only the wonder of all the schools in this line of work, but she is probably destined to be a wonder to the world." I remember of once saying to our people, when the subject was before us in GLEANINGS, that Helen Keller would eventually stand before the crowned heads and the kings and princes of the world.

Now to get back to Tommy Stringer. Our friends will perhaps remember that Helen Keller, in her report in regard to him, admitted that he did not take hold as Willie Elizabeth Robin and some of the others did. We excuse Tommy by saying he was a boy, and everybod knew boys did not "catch on" as quickly girls do. I remember feeling a little anxio about Tommy myself. There is somethi queer about his case; and even the teache were obliged to think it was sometimes *don care* rather than *don't know.* Tommy w "balky;" but it seemed to be more of a bodi balk than a mental one. He would get laz and seemed to expect that his teacher w going to do the whole of this matter of educa ing. He would get his spells of being contrar and neither coaxing nor any sort of mild disc pline would get him out of it. Perhaps some you may smile when you recall to mind th poor Tommy is not the only small boy who thus afflicted. Well, I am glad to be able tell you that our young friend is coming brav ly "out of darkness" and "into light." Let remember that his early and perhaps most i portant years were lost or worse than lost. was born in Pennsylvania in 1886, and was ceived into the kindergarten when he w about five years old. Before this, on accou of poverty, he was, if I remember correctly, p into a sort of infirmary where nobody cared him, and where his main accomplishment w creeping about on the floor. But, true to natural disposition, he always crept backwa bumping against every thing and everybo Please imagine, if you can, a child five ye old, who has never beheld the light of day— never heard a sound, and who knows little nothing of loving care from anybody. Do y wonder that Tommy was not only ignorant contrary and stubborn when they found hi One might almost weep to think of a child such benighted darkness. The reason he not educated like Helen Keller was, that it *too much money.* Somebody has said that whole great State of Pennsylvania, with all wealth, could not afford to pay for educat poor Tommy. But, hold on! It was not Pe sylvania alone, but the whole United State America, that waited for a little deaf, du and blind girl to hunt Tommy up, and with childish voice plead for him. Hold on! I making *another* mistake. She *hadn't* a vo to plead with; but such as she had she used Christ's service. One is reminded of the wo "Silver and gold have I none; but such have, give I unto thee." Helen's app brought forth the funds, and *we* helped; every one who had a part in that contribut ought to feel glad now when he thinks of it.

Poor Tom knew nothing about it. In f *could not* know any thing about it. All the w men with all their skill and knowledge, in whole wide world, could not tell him. This stitution in Massachusetts, however, undert the task of telling him. They also undert the task of telling him about the great above—the God who implanted, even in p Tommy, the knowledge that he possessed living soul," even if he was made out of "dust of the ground." And now let us consi the good news that comes. Tommy, with his dullness, with all his obstinacy, proved be a *joker*. Wouldn't it be funny if we sho have a deaf, dumb, and blind *humorist?* it was along the line of taking advantage Tom's disposition for practical jokes and playing tricks that they made progress. work was accomplished by personal effort. teacher had become *intimately acquainted* w the poor child. She took him home and him help her bake cookies. This was so thing he greatly enjoyed. He was allowed have a part in all the work, even putting cookies into the oven and taking them out. course, he had one hot to eat, right from oven. Where is the boy who does not know how to "help" in that part of it? While he ate his cooky he was in the habit of sitting down on a little hassock. This time, however, he ate his cooky standing up. The cook looked around to see where his hassock was, and to find out why he did not sit down as usual. It could not be found. It was there a few minutes before it had suddenly disappeared. A peculiar smell, after a little, prompted them to look into the oven, and there was the hassock where Tom had dextrously whisked it as soon as the cookies were taken out.

Tommy sleeps with his companion. Like other boys, he does not always want to get up in the morning. Instead of calling Tommy, as your mother does, their plan of calling him to get up is to pull down the clothing until he wakes; and his room mate, Lyman, oftentimes performs this office. One night there was a disturbance, however, and the teacher looked in to see where the trouble was. Tommy was giving his friend Lyman a little treat in the way of retaliation by stripping off the bed-blankets, sheets, and even the pillow-cases. He did not seem to hold any malice, however; for when his teacher told him to restore the clothing, etc., he made up the bed very neatly and quickly, for that was one of his accomplishments.

Mr. Anagnos, one of the founders of the school, and one of Tommy's special benefactors, one day entered the schoolroom when the teachers were trying in vain to get Tom to spell *thread*. He seemed utterly incapable of managing that particular word. Mr. A. came up and touched him. That is the way in which friends make themselves known to these unfortunates. Tommy at once grasped for the hand, and commenced feeling of the sleeve-buttons, to see who it was. In an instant he was in the arms of his benefactor. Evidently considering, however, that it was not just the thing to break off lessons, even for a frolic, he stretched out his hand toward his teacher and spelled *thread* several times very plainly and easily. The question arises, Could not Tommy have done it all the time if he had had a mind to? or did the joy occasioned by meeting a dearly beloved friend stir him up to a new degree of intelligence? If we decide the latter, we shall probably do it because of former experience of our own that we recall. There are a thousand things that we can do, and do easily, if just the right motive be brought to bear to wake us up. Sometimes it does a body good to get *vexed* just a little. Such a weapon, however, is not to be unguardedly recommended. It might prove to be a dangerous-edged tool.

Tom had a fashion of amusing himself by pulling the buttons off his clothing when he had nothing else to do. His kind teacher cured him of it by teaching him how to sew them on; and after he had become a little tired of the task of making good the consequences of his mischievous habit he got over it.

Tom's special friend, Fred, had been away for some days. He came back; and as he too was glad to see his playmate, he gave Tom a hug and kiss. Tom was upstairs making beds at the time. After his friend had gone, however, he found it necessary to stop his work for a while, while he danced up and down, spelling on his boyish fingers the name of his playmate, "Fred," "Fred." You see, Tom is getting to be a *boy* like other boys; and even in spite of his afflictions he can dance up and down, and do the very things that other boys do, so far as the limited use of his faculties will permit him.

He had displeased one of his teachers by his disobedience—probably by his stubbornness—and she was obliged to go away before he had had time to tell her he was sorry. When she came back, in the exuberance of his joy he began spelling the names of all the objects in the room, as correctly as he knew how. With his limited vocabulary he knew no other way to express sorrow and regret for his bad behavior than to recite his lessons in a way he was sure would please her. Here again we see the spirit of the saying, "Silver and gold have I none; but such as I have, give I unto thee."

Tommy is very cautious. Probably sundry bumps and bruises in the dark have made him so. For a great while he was afraid to ride in a little cart the children amused themselves with. His teachers, however, labored to overcome his unreasonable fear; and finally, when Tom was really tumbled out of the cart, and made haste to get up and climb in again, they felt they had achieved a victory. He knows the days of the week, and has a particular liking for what they call "clay day." This is the day when the children are permitted to take lessons in molding clay into different shapes—a favorite pastime for the blind. Entering the school on Friday he stood still for a few minutes, evidently thinking; finally a smile lighted his face, and he spelled "apron," for that garment was the concomitant of his dearly beloved clay-working. After he had learned what day it was, he was taught to answer what to-morrow would be, and then yesterday. As this was a new exercise he replied, somewhat hesitatingly, that it was Friday. He was pleased to see that he had got on to the idea; but his propensity for a joke followed right on to his new acquisition. In order to show the progress he was making, the teacher asked him to tell somebody *else* what day yesterday was. Instead of answering Friday, as before, he replied, "Yesterday was Fred." Of course, this was a poor sort of joke; but who is there who would not rejoice to see a little fun creeping in, indicating that Tom was boyish and boylike?

One Monday morning he would not eat his breakfast, and he would not tell any one the reason. Finally, when he was reciting his lessons, the fact came out that he was in a pet because he could not have corn bread for breakfast; and then they remembered that for some time previously there had been corn bread on the table every Monday morning. Tom decided in his own mind that *Monday* had something to do with corn bread, and that, according to the fitness of things, that should be the rule. He had got it into his head that there had got to be corn bread, and so he did not eat because he did not find it. I think I have known of some grown-up "Tommies" who behaved a little after that fashion. Did you, my friend, ever have any experience along that line? You see, he is beginning to make inferences and draw conclusions.

One day he had an exercise in word-lessons by being asked to bring his teacher certain objects with which he was familiar. He enjoyed the lesson very much, and was quite willing to go through with it again the next day; but because his teacher did not remember to call for the *same* objects in the *same regular order* as she did the day before, he was disconcerted; in fact, he would not go on until the matter had been carefully explained to him.

These little details that I have gone over, you may think are trifling and unimportant. Some of you may ask, "Well, what is the point to it, any way? We see such things every day right at home." My friend, there is to me a most grand and wonderful point. In fact, it has been a lesson to me such as I have seldom had. Tommy is a child, and a child in great affliction; and yet with the use of all of my senses, and with 50 years or more of careful and constant teaching, I am in some respects but a child after all, and a child that *might* be pitied. Again, Helen Keller has astonished the world. The general decision seems to be that she was gifted naturally. I presume some credit is also to be given her teachers. They were discouraged about Tommy because he did not seem to possess Helen's natural talent. But suppose Tommy develops into a boy or man with a promise almost equal to that of poor Helen; and suppose that the other one of the three, Willie Elizabeth Robin, also manifests a wonderful and unusual intellect. To tell the truth, I begin to suspect such *will* be the result. What, then, shall be our conclusion? Why, it is *forced upon us* that it was the *education*, and kind and loving care, that have been bestowed upon these unfortunates—perhaps not altogether; but is it not probable that their progress is largely due to surroundings? to the careful personal work and training that have been given them? And, to go a step further, can it be true that, if the inmates of our jails and penitentiaries had had a like training when they were young—yes, very young—that they too might have been noble examples of Christian character and brilliant intellects? Oh dear me! can this be true? The bright gentle matron at the World's Fair who had these children in charge assured me it was a great mistake to wait till the deaf ones were five or six years old. Let us have them, she said, at the age of *two* years, or, better still, *one* year. She even declared (if I do not forget) that many things could be accomplished between the age of one and two that are almost out of the question if the child were neglected till it is seven or eight; and some pupils who have been allowed to grow to the age of ten or twelve before getting a glimpse of the world of intelligence that is hidden from them were almost dwarfed in intellect—so much so that they could never become *great* scholars. If this be true, just think, dear reader, of the responsibility that rests not only upon those of us who have a tolerably good education, but especially those who have felt the refining, ennobling, and purifying influences of the gospel of Christ Jesus.

Go ye into all the world, and preach the gospel to every creature.—Mark 16:15.

BEING POSITIVE GOODS WERE NOT ALL RECEIVED.

A LITTLE STORY THAT CONTAINS A GOOD LESSON FOR US ALL.

I have sometimes thought that a man needs to be forty or fifty years old before he can learn by experience not to be too sure of *any* thing; and almost every year's business brings us more or less unpleasantness in the way of deciding who is at fault when something can not be found. The following transaction illustrates the point so well that we have thought best to give it entire.

Friend Root:—Yesterday I was looking at my supply of foundation, and discovered a mistake. When I gave you an order, Oct. 28, 1893, I ordered with other goods (amounting in all to over $27.00) 5 lbs. of thin foundation, which I have weighed on scales bought of you, which are correct, also 5 lbs. *brood* foundation, which is not here. In my hurry to get in shape for winter I put the foundation into a bureau drawer to keep it from freezing, and paid no further attention to it till yesterday, supposing it to be all right. I then unpacked and examined it, with above results. No person but myself opens or has any thing to do with my bureau. More, I have my own house, and keep my fixtures and clothes and tools in it, and lock it when I go away. The package was not opened till yesterday. What I have is 5 lbs. of thin surplus foundation and nothing more. As I shall need the brood first, if you will kindly correct the mistake and send the 5 lbs. brood, less the price of Gleanings for the year, you will greatly oblige C. C. Eddy.

Reinersville, O., April 3.

To this we replied, under date of April 6:

Friend Eddy:—On referring to the order in question we find both items checked, and they were packed with your goods, each in a separate package. It is altogether probable that you put away in the drawer the 5-lb. package of thin and left the other package with the other goods. You should check up your goods as soon as received, and report any shortage. When you wait so long there is no chance for us to make any investigation. Please make a thorough investigation, and see if you do not find the other package of foundation. Our shipper who put up your goods says he *knows* it was in, and he is generally very careful. A. I. Root.

Medina, O., April 6.

April 9, friend Eddy replies:

Yours of the 6th inst. is at hand. As you say, both items were checked on the order; but that they were *packed* is hardly possible. Being checked made me more careless, as I have always found orders correctly filled, or nearly so. To convince you I am not in error this time, absolutely no person handled the goods but myself. After they reached station at Caldwell I went for the goods, paid freight, loaded, unloaded at home, and unpacked them by myself, and I am perfectly satisfied they were not opened or tampered with *en route*, also, there was but one package of foundation which I immediately put into a drawer, as stated which remained unopened or undisturbed in any way until the day before I wrote you. To this statement I am perfectly willing to qualify. I knew from the first unpacking there was but one packag of foundation. That I have been a little careles about being sure every thing was right. I admit but there is *positively* no chance of my being mistaken this time. C. C. Eddy.

P. S.—I supposed the one package contained th 10 lbs. of foundation, but neglected to weigh it further, every article has been handled over severa times, all made up and painted; even the boxe containing goods have been worked over into fixtures; consequently I see no chance that I hav made a mistake. C. C. E.

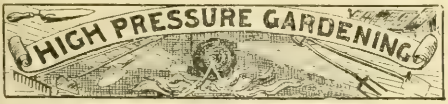
Now, a good many times the difficulty end right here; at least, no one is able to say wher the missing goods went to; and a good man times we send things a second time when w feel sure the fault is not ours. Sometimes w decide to divide the loss, each party bearin half; and I believe that, as a rule, we generall preserve pleasant relations and pleasant feelings. Sometimes, however, as time passes, th missing article comes to light. See one mor letter from friend Eddy, below:

Friend Root:—I hasten to acknowledge my mistake. I found the brood foundation put away in a old trunk where I thought there was nothing bu some rags; yet I felt sure I was right. But it i here—another instance of how positive one may b and still be mistaken. I am sorry this has occurre but can now only correct it and inclose stamps t pay the extra postage I have caused you. The onl excuse I have is, I thought I was right. I will tr to improve by this lesson in more ways than one.

Reinersville, O., April 10. C. C. Eddy.

As I look back through the years I have bee doing business, I remember several simila cases. One man was *sure* we did not send al of a lot of goods, and with much protest w sent a part of them over again. Some tim after, came an apology. When he unpacke the goods he laid part of them on a wheelbarro belonging to his neighbor. The neighbor wanted the wheelbarrow, and sent a boy after i The boy wheeled the barrow over home, good and all. As they were in a hurry they took th stuff from the wheelbarrow, intending to hav somebody carry it back; but it got tucke away, and came to light only after many days Our customer said it never occurred to him tha a wheelbarrow standing there could possibly have been spirited away, goods and all. Another man stoutly insisted that he did not have his foundation. After we had sent him another package, he discovered the first one was in the hive all right; but it fitted so nicely he concluded it was a chaff-packed division-board that we had generously "flung in" the bargain.

Now, in what I have had to say, please do not think I want you to be backward about telling us when things are missing. By all means, tell us about every thing that is not as you expected it to be; but do it pleasantly and kindly, and do not be in haste to decide that we try to cheat; and, on the other hand, dear brothers and sisters, we will try to have a big lot of charity stored up ready for use, so we shall not be tempted to think that *you* wanted to cheat us. A. I. R.



GARDENING MAY 1.

Any step that we can take to secure good crops without so much expense for labor is a decided gain. Ever since Terry told about not having cultivated his raspberries for three or four years, I have been wondering if there were not other crops that could be handled in the same way, and I think I have found one. It is a dozen rows of pie-plant, perhaps 10 rods long. The rows are three feet apart, and the plants are only a foot apart in the row. The consequence is, that, when the demand for "pie material" is not too strong, the foliage covers the ground so that hardly a weed can get a chance to grow. But to keep up this enormous growth there must be heavy feeding; so we literally *cover* the ground several inches deep with coarse stable manure, not only between the rows, but all between the plants. So far it seems to be working nicely. Of course, the ground was worked up very fine and loose before the plantation was started, and underdrains were put through every 20 feet. The only labor now needed, besides gathering the crop, is to cut out the seed-stalks just as soon as one can be discovered; and a small boy can be taught to do this with a very little training.

THE ST. MARTIN RHUBARB.

Several are asking about the St. Martin rhubarb. Well, the truth is, our plants grown from the seed showed such a diversity of character that I thought best to drop it; and several old gardeners told me that the only way to keep an exact strain of rhubarb was to increase by dividing the roots. I have not had time to satisfy myself in regard to this matter. I wish the experiment stations would answer the question, Is the St. Martin rhubarb raised from the seed any better than the Victoria or Linnæus? and is there any strain of rhubarb in the market that will come true from seed?

STRAWBERRIES UNDER GLASS, HEATED BY EXHAUST STEAM.

My experiment in this line is a decided success; but I very much prefer strawberries in a hot-bed where the sash can be taken clear off whenever the weather will permit. It is a very cold, hardy plant, and seems to be impatient of hot-house treatment. Last fall we put perhaps a hundred plants over our exhaust steam-heated beds. This is the line that goes over to the house; and in order to keep the hot-water pipes up to the temperature desired it is too warm for the berries. As a consequence, the glass was off whenever we did not have severe freezing weather. They blossomed in December and January, and we had some ripe fruit in February. Once they were frozen, and at another time I forgot to take the glass off before going to church one sunny Sunday. When I got back they were all roasted, green and ripe. They tasted a good deal like baked apples; but I do not believe I am decidedly in favor of baked strawberries. Well, they kept on blossoming, and very speedily they had a lot more of green fruit, and now it is ripening up very finely. I do not think I ever tasted any more deliciously flavored strawberries than those ripened under glass, with steam heat beneath. Before another winter I shall make a different arrangement so as to have more bed surface, and diffuse the heat so as not to have it too hot in any one spot. The plants are now literally loaded with berries, and, what seems a little singular, there is but a very small amount of foliage—not nearly as much as we have in the open air. The treatment they have received seems to provoke fruit-bearing rather than the production of leaves.

EARLY PLANTING.

Like many of the others, we planted quite considerably during the fine weather in the fore part of March. In fact, the acre comprising the swamp garden was all planted. The largest part of it was put into onion seed for early plants. Of course, this was all in the open air. Then we put in cold-frame cabbage-plants, cauliflower, Eclipse beets, carrots, parsnips, peas, potatoes, radishes, salsify, and spinach. After the blizzard during the last week of March I was afraid that nearly all my stuff was killed. But, fortunately, very little had got above ground, and now we have a good stand of almost every thing. Even the potatoes, which were all covered pretty deep, were not hurt at all, so I am decidedly in favor of early planting—that is, such things as I have mentioned above. If they get killed it is not very much labor to plant them over again.

ECONOMY IN PLANTING AND GATHERING THE CROP.

There is just one feature of the above that I wish to allude to right here. Ever since Terry advocated long rows clear through the lot, for cultivating, most of us have been working toward this. Now, in our market it is not policy for us to plant largely of any sort of garden-stuff. "A little and often" has to be our motto, so we do not overstock the market. Well, sometimes we put in a part of a row of something. When we are asked to test certain new things they must be put in a part of a row—perhaps a single rod of row or less. Well, this always makes trouble. If part of the row is harvested, then there is vacant ground to raise nothing but weeds. Of course, you can cultivate half a row, and turn around and go back again. But the horse stamps on the stuff; and, unless I am present to tell where one row ends and another commences, the man who cultivates will dig up something valuable. I have about decided that we must have whole rows of every thing planted. If we can not do that, put it in plant-beds and give it hand culture. And now about gathering crops. I think every spring, that, in spite of all I can do or say, somebody will commence gathering parsnips and vegetable oysters—yes, and winter onions—right in the middle of the row, and perhaps that person will select a row in the middle of the patch. I do not see how anybody can want to see a great hole gouged out of the middle of a nice crop of any thing. This year

I told the boys, when they gathered these roots, to take the outside row every time; but somebody did not understand, and gouged into another row. The consequence is, when we come to plow, a great lot of ground is wasted unless we take up the broken pieces of rows and plant the stuff solidly together. Disorder and disorderly practices constitute one of the banes of my life. Somebody wanted some cabbage-plants; and before I knew it one of the boys commenced this spring, after the same old fashion of pulling a hundred or two out of the middle of a nice bed. Now, this ground is very valuable; but how could it be used in that irregular fashion? Had they commenced at the end of the bed, and taken the plants out clear across, a nice little square strip of ground would have been ready for lettuce seed, cabbage seed, and ever so many other things that should be put in at this season of the year. The objection was made, that the customer said he would not take any unless he could have the biggest plants, picked out here and there. Well, there may be some reason in this if the plants were not *all* of them good enough. Had I been present I should have said this: "My friend, we will pick out the best there is in the bed, for *just double price.* If you will take such goods, however, as we use ourselves, and send off to customers, you can have them at the regular printed list prices." But a good many times, when there is no difference in plants at all, somebody, without thinking, will tear up a beautiful bed, and leave it looking as if the hogs or chickens had got into it. Of course, it is the younger ones who are more likely to do such things thoughtlessly. But, just think of it. If you are going to make a success of a plant-garden—if you are going to have your grounds look neat and tidy, it behooves you to keep constantly in mind that you must endeavor to keep the ground cleared up clean, as far as we go; and then our grounds can be kept looking trim and neat and inviting in appearance.

Another thing, if a cold wave comes, how are you going to manage with plants scattered here and there, requiring a dozen sash to cover them, when, if they were in one compact bed, two sashes or even *one* might make them safe? Please do not understand that I mean you should push off culls and plants too small to be of any value. After the good ones are taken out, these culls should be put in without charge, or taken up and put in a straight row by themselves. By the time your bed is finished, these smaller ones will be nice handsome plants. If you push ahead in a slipshod, haphazard sort of a way, without any planning or looking ahead, you will find out where you are, and you will realize the truth of what I have been saying. There may be such a thing as overdoing this matter of taking too much time to keep things in order; but it pays, and pays big, to be *systematic*, and neat and tidy, even in a plant-garden.

ABOUT TOMATOES—HOW TO GET THE SEED TO COME UP QUICK.

Mr. Root:—I have just read about your getting tomato seed up in 8 days. Now, I never fail to get my tomato seed nicely up—*straight up*—in *four and one-half days*, and you can do it just as easily. Take a cigar-box, pry the bottom loose a little to let out water; fill with nice soft dirt; place the seed just where you want them; cover ½ inch. I generally push them into the dirt with a match. Now listen. "Soak 'em" with *hot* water—not hot enough to scald the seed, but hot enough to warm up dirt, box, and all. Now, to keep them warm and retain the moisture at the surface, fold a newspaper, and tie it over the top of the box. Place the box in a warm place on an iron mantelshelf in the family room, kitchen, or some place to keep the heat up pretty regular, and be sure to put the date on the box, and don't forget to take a look at them the fourth day after planting. If you wait many hours longer you will likely find your plants hunting for daylight, and two or three inches long, and *leggy*. I have always had at least 90 per cent of the seed up nicely in 4½ days or a little less. I think I wrote you several years ago that I cut off all suckers from my tomato-vines, allowing only one stem, which is kept tied up to a single stake, fruit ripening in clusters toward the last of the season, near the top of the stake, five to seven feet from the ground. My tomato-patch is always the wonder and admiration of all.

Now about transplanting to the garden or permanent patch. My observation has shown me that, if the plant can be taken from the nursery, as it were, to the garden, without losing the adhering dirt and very small fibrous roots, the plant will grow right along, and produce fruit from the *first* fruit-stem, that has generally begun to form by planting-out time, although it is very often not noticed, and the first fruit will form and ripen very near the ground. Now, if the plants have been roughly handled, and put in the ground minus these fibrous or very small roots, this first fruit-stem will most certainly wither and drop off, unnoticed, usually; and it will put back the fruit bearing and ripening at least two weeks. I have several times ordered small plants by mail from you early in the season, two or three weeks before setting-out time, and put them into a cold-frame, giving each plant about inches of space, when I could transplant them nicely when the time came.

Winchester, Ky., April 17. **Jno. S. Reese.**

WATER-CRESS PLANTS.

It seems that these plants are already in th market; at least, I judge so from the followin letter from an old friend of Gleanings:

Mr. Root:—I send you some water-cres grown by spring water. I have 1000 plants.

Amity, N. Y., Apr. 5. J. W. Utter.

[The plants were very strong and vigorous but they were a little yellow when receive from the mails. However, they seem to b starting out all right to grow.]

WATER-CRESS, AND SOME SUGGESTIONS IN REGARD TO ITS USE.

I used to live near brooks abounding in wate cress, and am often hungry for the sight an taste of it again. I have a packet of the "vil weed"—upland cress—from Maule, but sha test it sparingly. Water-cress was prescribe by physicians in Wisconsin, where I formerl resided, as a remedy for kidney disease. It is pleasant medicine to take.

Now, Mr. Root, about how we shall eat i A celery-glass with water, and a bouquet of th long well-washed cress hanging over, to t taken out and broken off as one requires, or rose-bowl with a handful of the long stem loosely coiled and the ends brought up an over the sides, or a platter or large plate crowned with a mass of the luxuriant greens, are a fit dishes for the king (crowned or otherwise).

If one wants the delicate cress flavor, just bit of salt is all the seasoning; but tastes d differ, and all must suit themselves with th most healthful and delicious of salad garnishe

You mentioned, not long since, the use nasturtium as a salad. Yes, it is a hardy, desirable foreign salad, and can be grown mos satisfactorily in the house window in dee boxes, and the leaves used all winter. I hav n ounce of dwarf seed to sow when I plant my ettuce-bed. MRS. L. J. PAGE.

Faribault, Minn., Apr. 12.

NGLISH MULTIPLIER ONIONS, AND WHAT THEY ARE WORTH WHERE THEY GROW THEM BY THE HUNDRED ACRES.

Mr. Root:—After reading your articles on nion-raising, and request to know who had nglish Multipliers for sale, I wrote to the ostmaster of Middleport, N. Y., making in- uires about who raised them near there. To- ay I received an answer from H. H. Bidford, ohnsons Creek, N. Y., who says he will sell me bushels, good stock, for $7.75. He says he has ld 115 bushels at that price, and has 500 ushels more on hand. I have wanted some ver since I came here, but wouldn't pay 25 cts. er pint for them, and 15 cts. postage. I used to ise them when living in Missouri, and I must y they are the best onion for family use I ver raised. B. G. SCOTHAN.

Rogersville, Mich., Mar. 27.

[The above are the yellow English Multipli- s, if I am correctly informed. Those we have en offering for sale, and now offer for sale, e the white multipliers, a much handsomer nion for early bunch onions. If I am correct, ese multipliers are very much better keepers that is, far less likely to sprout; than ordinary nions. Our white multipliers are almost en- rely without a sprout—firm and solid, and yet e yellow and red onion, and even the various nds of onion-sets, are sprouting badly in spite us. The shallots also seem hard and firm d unaffected, while all the common onions e sprouting and becoming soft.]

SPECIAL NOTICES
FROM
BUSINESS MANAGER

JAPANESE BUCKWHEAT.

If any of our readers not too far distant have any panese buckwheat seed for sale we should be eased to hear from you with sample, stating how uch you have to sell, and at what price you hold it.

FREEMAN POTATOES.

As we go to press we find we have left about 10 shels of second size, and between 50 and 60 bush- of No. 1; but at the rate they are going, they n not last many days. All other kinds are nearly t, except Monroe Seedling. These are still keep- nicely, and will fill the bill nicely for late plant- . *Later.*—Rural New-Yorkers sold out.

EXPORT TRADE.

As we go to press we are loading a car for New rk, with goods for export. This makes the third rload of goods for export within six weeks. Most these goods go to Australia, some to the West dies, and some to Europe. These export ship- nts include over 100,000 two-inch extra-polished tions for England.

GLOBE LAWN-MOWERS.

Ve quote a reduction of 50 cts. each on the prices lawn-mowers given in our catalog, on page 50, to r readers and their friends. There is no better ap mower made than the Globe. We have had e in use on our lawn for five years, and it runs y and does splendid work. With above reduction prices will be, for 10-inch, $3.50; 12-in., $3.75; in., $4.00; 16 in., $4.25; 18-in., $4.50. See advertise- nt on cover page.

BUSINESS TO DATE.

Ve have just shipped a carload of hives, sections, d assorted supplies to Vickery Bros., Evansville, Ind. Orders have been coming in at a lively rate, and the goods have been going out just as lively, for we are right up with orders, and ship goods within two or three days after orders reach us, unless for odd or special goods, or something we are out of for the time being. In a few such cases orders may be delayed a few days longer. As a rule, however, the goods go off promptly, and the kind words received from our customers for prompt shipment and superior quality of goods received encourage us to redouble our efforts to please all who entrust their orders with us for goods required.

HONEY, COMB AND EXTRACTED.

We still have a stock of choice comb and extracted honey on hand to dispose of. The comb in one-pound sections, in 100-lb. lots, we offer at 14½c, or for the lot of 300 to 400 lbs., 14c. Less than 100 lbs., 15c per lb. No. 2, or fair, at 10c per lb. in 100-lb. lots or more.

Choice extracted honey, clover and basswood, in 60-lb. cans, two in a case, at 8c per lb.; lots of two cases or more at 7½c. White sage honey ½c less. We have a bbl. of a little over 500 lbs. of mostly basswood honey of very fine quality, that we offer on cars at Plattveville, Wis., at 6¾c per lb.

SLICED WOOD SEPARATORS.

Since we have been furnishing sawed wood separators there has been a much smaller demand for the sliced ones, which, though not as straight and durable and nice to use as the sawed ones, yet answer a good purpose. Many prefer to use them but once, and then throw them away. We have quite a large stock of the following sizes, which we offer at reduced prices to move them off:

3½x17 and 17¼ in. at 20c per 100, $1.50 per 1000.

3½x18, or any length we can make by cutting off these lengths, 25c per 100, $1.75 per 1000.

4½x17, slotted both sides, 30c per 100, $2.00 per 1000.

4½x18, slotted both sides, 35c per 100, $2.50 per 1000.

4½x18, slotted both sides, and slightly colored or mildewed, 25c per 100, $2.00 per 1000.

BEESWAX ADVANCING.

The market price of beeswax is on the upward move, and to keep in touch with it we offer till further notice 25 cents per lb. cash, or 28 cents in trade for average wax delivered here. All wax is refined as soon as received, and we can not offer for sale any of this refined wax at less than 33 cents per lb. We make no advance in the price of comb foundation as yet, but if wax advances any more the price of foundation will have to go up with it. Wax-dealers claim that price is likely to advance still more before we get through this season, but we do not look for much if any further advance. Comb foundation will be no lower this season, it is certain, and it may be higher; it is, therefore, a good time to buy what you need before there is an advance in price.

CREAM SECTIONS.

We are entirely sold out of 1⅞ and 1$\frac{15}{16}$ cream sections, and can not supply any more of these widths in this grade. We have some 7 to foot and 2 inch, which, not being very desirable widths, we will let go at $1.50 per 1000, to close out. Part of the 2-inch are open all around. Of old stock white we still have 1$\frac{15}{16}$, open top and open all around; also 1$\frac{13}{16}$ closed and open top. 1¾ closed and open top; 7 to foot closed and open top; 1⅞ open two and four sides, at $2.50 per 1000; 2000, $4.50; 5000 for $10.00. Sections at Bankers, Mich., are all disposed of or returned here. Those offered at St. Paul at special prices may still be had. We have most of the large odd sizes, enumerated in our last issue, on hand yet.

VEGETABLE-PLANTS MAY 1.

Well, friends, we have been having a tremendous trade as usual. We have been sold short on Prizetaker onion-plants, Jersey Wakefield and Early Summer cabbages. In fact, we are short on all of these just now. We have plenty of the following: One-year asparagus-roots—good strong ones; horse-radish slips; cauliflower plants; all kinds of tomato-plants; but I wish to say right here that I do not believe it advisable to order tomato-plants long distances. They are so tender and fragile, that, unless great care is taken in packing, they are liable to be injured. We have a great plenty of nice celery-plants—White Plume, Golden Dwarf, Self-blanching, New Rose. We have also a fair stock of bullnose, cayenne, or Spanish peppers. Sweet-potato plants are not yet ready, but we are preparing for a larger stock, both of sweet-potato and yams, than we have ever had before. We can still ship strawberry-plants by picking off the blossom-buds. We have a fair stock of all the varieties we advertise (including the Edgar Queen), with the exception of the Jessie. I presume the great demand for the Jessie is principally as a fertilizer; and I should like to ask whether our experiment stations and strawberry growers generally know of a better plant than the Jessie, for fertilizing. The Parker Earle would no doubt be tiptop, but it is a a good deal later in coming into blossom than the Jessie. Michel's Early we expect to recommend for an *early* fertilizer, after we get a lot of nice plants ready. The demand for garden seeds has been greater this season, so far, than ever before since we have been in the business.

Handbook for Bee-keepers Mailed at ten cents per copy.

North Attleboro, Mass., April 12, 1894.

My Dear Alley:—I don't know what will be said generally about April "*Api.*," or what criticisms will be made in regard to it; but one thing is just sure and certain—it contains more cloth "all wool" to the yard than any one journal I ever saw. It is seldom we get the subject canvassed at all, but you have succeeded in boiling down the whole matter so that any one who has given any attention to the subject, in the way of study or reading, will be able to work intelligently and to good purpose. You have reason to be proud of the April number, and I congratulate you on its worth and value.

J. E. POND.

Address **H. ALLEY, Wenham, Mass.**

☞In responding to this advertisement mention GLEANINGS.

Bees and Queens.

Select tested queens, from imported mother, $1.50 each; untested, 90 cts. each; 2-frame nucleus, with untested queen from imported mother, both frames containing brood and all adhering bees, $2 00. Bees by the pound, 90 cts. Satisfaction guaranteed. Will be ready to ship May 15. **MRS. A. F. PROPER, Portland, Jay Co., Ind.**

Imported Carniolans, bred in 1893, $5 each; home-bred tested, $2; untested, May, $1, bred from imported mothers. Foreign orders, $6, $3, and $2. Safe arrival at any postoffice in the world. Mrs. Frank Benton, Charlton Heights, Md.

5000 Golden Queens in 1894.

1 untested queen by mail	$1 00
6 untested queens by mail	5 00
1 2-frame nucleus	2 75
2 2-frame nuclei	5 00

Untested queens with nucleus. Satisfaction in all cases. Send for sample of bees.

J. F. MICHAEL, German, Darke Co., O.

☞In responding to this advertisement mention GLEANINGS

Eggs for Hatching.

Black Minorcas, S. C. Brown Leghorns, 75c per 13, or $1.25 per 30. Buff Leghorns, $1 00 per 13. Fine fowls low. JAMES M SMITH, PERKIOMENVILLE, PA.

For Cash.

Pure light-colored Italian queens in April, May, and June. One untested, $1.50; ½ dozen, $5.00; per dozen, $9.00. Tested queens, $1.50 each. Select tested, $2 00. Guarantee safe arrival. Address
D. E. ALDERMAN, Clinton, Sampson Co., N. C.

100 ***Brood-frames***, with tin separators, Simp. size. Frames are filled with 1-lb. sections; sections are filled with foundation; some is built into comb. Price 12c each. E. R. GIBBS, NORWALK, O.

HURRAH! 1884 to 1894

Has shown me the best bee for our Northern climate. Give me the dark Italians for wintering, for honey, and money. Large, hardy, and industrious. Untested, dark or yellow, $1.00 each. Tested, $1.50. Send for price list. **MRS. OLIVER COLE, Sherburne, Chenango Valley Apiary. Chenango Co., N. Y.**

Italian Bees and Queens

Ready in May. Queens, $1.00; bees by the lb., $1.00; 1-frame nucleus, $1.25; 2-frame, $2.25. Also Barred P. R. eggs for setting, 15 for $1.00.
Mrs. A. A. Simpson, Swarts, Pa.

Bees for Sale.

10 colonies of Italian bees in 10-frame Simplicit hives (Root's make); combs built on foundation. Bees are strong and in first-class shape. Price $4.5 per colony. ***E. R. Gibbs, Norwalk, O.***

For Sale for 1894. Italian bees and queens cheap for cash. Address
OTTO KLEINOW, 118 MILITARY AVE., DETROIT, MICH.

COMB FOUNDATION.

Made by an

IMPROVED PROCESS ON NEW AN IMPROVED MACHINES

of my own invention, which enables me to produce

The Cheapest.

Prices on 5 lbs. or more will range from 35 to 5 per lb. Send for prices and samples.

W. J. FINCH, JR.,
931 E. Monroe St., Springfield, Illinois

☞In responding to this advertisement mention GLEANINGS

5-BANDED GOLDEN ITALIAN

Bees and Queens. Pure B. P. Rock and S. C. B. Le horn eggs, $1.00 per 13. Best only. Catalogue fre
Chas. H. Thies, Steeleville, Ill.

Please mention this paper.

ITALIAN QUEENS. Untested, 80 cts. eac 3 for $2.25. Tested, $1.2 Select tested, yellow to the tips, breeders, $1.50. eift ***G. E. DAWSON, CARLISLE, ARK.***

Look Here, Bee-keeper!

If you are in need of some be supplies, write for catalogue and price list. Eve thing sold as cheap as the cheapest.

W. E. Smith
Kenton, Hardin Co., O.

WILLIAM HEASTMAN, CITRA, FLA.,

Breeder of the celebrated "Orange blossom" Italian Bees and Queens. Untested, 75 cts.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid quee which they wish to dispose of, we will insert notices as belo first insertion free of charge. After the first, 10 cents per li We do this because there is hardly value enough in the queens to pay for buying them up and keeping them in sto and yet it is oftentimes quite an accommodation to those w can not afford higher-priced ones.

25 good black and hybrid queens. Price, black, cts. each; hybrids, 35 cts. each, or 3 for $1.00. Sa arrival guaranteed. Money returned if all sol Send one and two cent stamps. E. F. QUIGLEY,
Unionville, Mo.

I have one of the choicest flocks of

Brown Leghorns in the State.

Keep no other kind. Eggs, 75c per 15; $1.25 per

B. G. SCOTHAN, Rogersville, Mich.

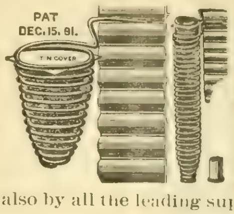
BEES

40 Colonies Italians, $4.50

Hybrids, $4.00 per colony. Packed ready to ship in a new Dovetailed hive; 8 good worker combs.

J. B. McCORMICK, Fredericksburg, Ohio.

Control Your Swarms, Requeen, &c.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. 12 Cell-protectors, 60c; 100, $3. 12 Cages, 60c; 100, $5, by mail. Circular free. Address **N. D. WEST, Middleburgh, Scho. Co., N. Y.** Sold also by all the leading supply-dealers.

THE BURTIS, PATTERSON, SARGENT COMPANY
B P S
PAINTS
CLEVELAND, OHIO.

ECONOMY IN PAINTING

DEPENDS UPON THE

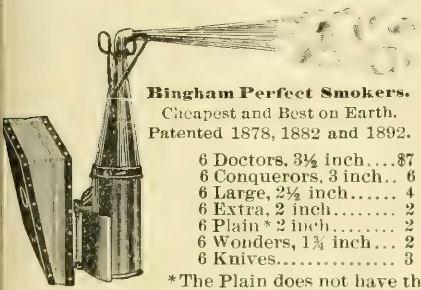
Durability of Covering Power

of the paint used. A paint made of ***White Lead, Zinc,*** and ***Pure Linseed Oil,*** thoroughly mixed and finely ground by powerful machinery must be more durable and have greater covering power than a paint stirred up by hand with a stick.

B. P. S. PAINTS ARE MADE TO WEAR,

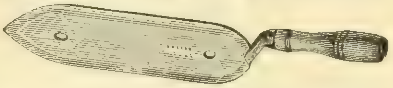
and one gallon will cover over 300 sq. ft. of average surface two coats. It is fully guaranteed by our agents, and a trial will convince you that it is the

Best Paint Sold.



Bingham Perfect Smokers.
Cheapest and Best on Earth.
Patented 1878, 1882 and 1892.

BINGHAM & HETHERINGTON HONEY KNIFE.



Patented May 20, 1879 **BEST ON EARTH.**

6 Doctors, 3½ inch	$7 00	1 per mail	$1 95	2 per mail, at one time	$3 50
6 Conquerors, 3 inch	6 00	1 "	1 75	2 " "	3 00
6 Large, 2½ inch	4 50	1 "	1 25	2 " "	2 25
6 Extra, 2 inch	2 75	1 "	1 10	2 " "	1 90
6 Plain * 2 inch	2 40	1 "	70	2 " "	1 30
6 Wonders, 1¾ inch	2 50	1 "	65	2 " "	1 20
6 Knives	3 50	1 "	80	2 " "	1 50

*The Plain does not have the Coiled Steel Wire Handle, neither the bent Cap for throwing the smoke at right angles. All the others have all our new improvements.

The movable bent cap enables you to change a curved shot to a straight shot instantly, and *vice versa;* hrows smoke downward without spilling ashes; adds durability and convenience, and is cheaply replaced f injured. The wire handle is always cool for opening and closing the smoker when refilling with fuel. ound, dry stove-wood is the best fuel for Bingham smokers. Below is a copy of a letter from the largest roducer of comb honey in the world:

essrs. Bingham & Hetherington.

Gentlemen:—I use the Bingham & Hetherington honey-knife and the Bingham smoker in my business ecause they are more effective for the purpose than I have yet found in the market.

Cherry Valley, N. Y., Feb. 15, 1894. J. E. HETHERINGTON.

T. F. BINGHAM, ABRONIA, MICH.

3 Carloads of Supplies.

This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods heap. If you have *the money,* also remember you can make it earn a big interest by availing yourself of ur discounts for early orders. In either case you should write us and tell what you will likely need. It ill pay you. We sell Root's goods at Root's prices, and can save you freight. he new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially

FOR THE WEST.

oseph Nysewander, Des Moines, Ia.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

FULL LINE OF

BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

"G & B" Web-Wire Fencing

MEETS THE POPULAR DEMAND FOR

A Harmless Fence at a Reasonable Cost.

HUNDREDS OF MILES IN USE

BY SATISFIED CUSTOMERS WHO HAVE FOUND IT

PERFECTLY SAFE for horses and cattle.
SUFFICIENTLY STRONG for vicious stock.
A SURE INCLOSURE for sheep and hogs.
A RELIABLE PROTECTION against dogs for sheep.
A SATISFACTORY FENCE to property-owners along railroads.
A FENCE COMBINED for both large and small animals.
A COMPACT MATERIAL for portable corrals.
Excellent for grapevine trellises.

Animals will not bend it to crawl under or climb over, or loosen it from the posts.

"G & B" WEB-WIRE FENCING is made of the best quality **Heavy Galvanized Steel Wire** (No. 14 in the meshes, No. 13 in the selvages) woven into diamond-shape meshes by automatic machinery, insuring a regular and smooth fabric, strengthened by **three-strand rope selvages** at both sides.

The 3x6 inch Mesh is suggested for sheep-enclosures; the 4 x 8 for cattle and hogs, and the 5½x 10½ for a very low-priced fence for any purpose named.

PRICE IN FULL ROLLS, 20 RODS EACH.

3 x 6 inch Mesh.		4 x 8 inch Mesh.		5½ x 10½ inch Mesh.	
WIDTH.	PRICE.	WIDTH.	PRICE.	WIDTH.	PRICE.
26 in.	Rod, 45 c	26 in.	Rod, 38 c	28 in.	Rod, 31 c
32 in.	Rod, 52 c	34 in.	Rod, 44 c	36 in.	Rod, 38 c
38 in.	Rod, 60 c	42 in.	Rod, 51 c	47 in.	Rod, 44 c
50 in.	Rod, 72 c	50 in.	Rod, 57 c		

All widths put up in bales 20 rods (330 feet) long.

A higher price charged for lengths shorter than a full bale. Shipped direct from Chicago or New York.

What we wish to call your attention to especially is the following list of pieces and short rolls which we can sell, to close them out, at *less than full-roll prices*. In this list are some full rolls and pieces of sizes which the factory have discontinued making, and for that reason they offer them at a sacrifice to clean up the stock of odds and ends.

The above, you notice, is woven from galvanized wire, while you will find the most of the following list is 4x7-inch mesh, galvanized after being woven, and on that account very much superior, and more expensive to make. It formerly sold for about double the prices named below. It has also one number heavier wire in the meshes than the rest, being No. 13 wire throughout. All other sizes are made of No. 14 galvanized wire, woven in the meshes, and a 3-strand rope of No. 13 wire for selvage, except the 4x8, which has No. 10 wire selvage.

The wide fencing is designed to be put up alone, while the narrow widths are used at the top or bottom in connection with barb-wire or other strand fencing. Much narrow is used at the bottom of posts for hogs and sheep, while for horses and cattle it is often used at the top of posts in place of a board or rail.

All the fencing in the list, except the last few lines, is in stock in Chicago and New York, and shipments will be made from these points. That you may know what is in stock at each place we have inclosed within brackets [ ] all the stock in New York; and what is not so inclosed is at Chicago. The length of the pieces is given in feet, and the price per foot as well as per rod. This fencing is usually sold by the rod; but for convenience in ascertaining the cost of each piece we have given also the price per running foot, and you have simply to multiply the combined length of the pieces you require by the price per foot to get the cost. We get an additional discount if ordered in lots of 10 pieces; and, therefore, if you can use so much you can secure this fence at a price which is below what new regular stock in above list costs us at wholesale. The freight from New York to Chicago in 100-lb. lots or more is only from 2 to 5 cts. per rod; so if any of our western customers desire some of the New York stock they need not refrain from ordering on account of freight charges.

In the following table the width in inches is given in the first column; size of mesh in second; price per rod in third; price per linear foot in fourt and a list of the pieces, with length in feet, in fift

Inches.		Price.		List of Pieces, and Length in Feet.
Wide	Mesh	Rod	Ft.	Multiply by price per foot for cost.
26	4 x 11	33	2	2 bales, 20 rods (330 ft.) each. [330.]
50	"	.55	3⅓	1 bale, 20 rods, 190 and 15.
25	5 x 11	.33	.2	118, 58; of 36 in. at 2¼ c.; 52, 43, 38.
47	"	.44	.2⅔	230, 60, 38, 27.
14	4 x 7	27	.1⅔	330, 330, 206, 108 [198].
18	"	33	.2	261, 32 [145, 105]; of 22 in. at 2 c., 50 [297].
26	"	37	2¼	102, 35, 10, 11 [148, 110, 95, 59, 50].
30	"	.41	.2½	330, 330, 144, 50, 25, 25 [188].
34	"	.44	2⅔	90, 80, 48, 44, 43, 25, 17, 14.
38	"	.49	.3	34, 29, 20, 13, 9.
46	"	53	3¼	[330, 210].
50	"	57	.3½	[183] of 42 in., at 3 cts. per ft.; 25, 130.
62	"	.66	.4	[330, 317].
66	"	.70	.4¼	[330.]
14	4 x 8	.27	1⅔	[1 bale, 20 rods (330 ft.) each].
22	"	33	.2	[9 bales, 20 rods (330 ft.) each].
42	"	50	3	[3 bales, 20 rods each, and 135 ft.]
20	3 x 6	.38	2⅓	250 ft.
26	3 x 6	.45	2¾	21, 190, 119, 148 [150, 150, 101].
44	"	66	.4	165, 24, 4½, 4½, 4, 2
38	"	58	3½	198, 32, 19, 14, 40½, 81, 66.
50	"	72	4⅓	14, 4.
				ON HAND HERE AT MEDINA THE FOLLOWIN
14	4 x 7	.27	1⅔	166, 52, 35.
22	"	.33	2	107, 68, 35, 15.
30	"	41	.2½	52, 47, 36, 33, 30, 29, 19, 18, 13.
34	"	44	2⅔	25, 18.
42	"	.50	3	68, 8, 6.
18	8 x 13	25	.1½	68, 36 in., 200 ft. at 3 c.; 45 in., 247 ft., 3¾

In lots of 5 pieces, 5 % off. Not less than 10 pieces in one der, 15 % off from above prices; 20 pieces or more, 20 % from prices in this last table only. Staples, 1¼-in., 5 cts. per

WIRE NETTING.

SHORT ROLLS AT FULL-ROLL PRICES OR LESS.

We have the following lot of wire netting of va ous sizes and widths in short or odd-length ro Very often a person wants a piece and can not b it cut from a full roll without paying double pri You may be able to find in this list just what y need, or very near it. Even if you want more th a full roll you will find the prices at which we of these to be in most cases less than full-roll price.

Of 2-inch mesh No. 19 wire, we have the follow remnants and short rolls at ⅗ c per square fo The figures at the left give the width in inches, a the other figures give length of each piece in fe Multiply this by the width in feet, then take thr fifths of the result to find the price of each piece

12 | 41, 70, 74, 86, 88, 89, 100, 130, 130, 135, 134.
18 | 60, 135, 138.
24 | 51, 60, 69, 78, 98.
30 | 45, 60, 64, 65, 70, 95, 100, 107, 123, 140, 144, 146, 148
36 | 18, 19, 19, 38, 40, 40, 47, 49, 50, 50, 52, 53, 54, 55, 58, 60, 60, 65, 67 72, 73, 82, 82, 82, 83, 83, 83, 84, 86, 89, 90, 92, 93, 94, 96, 96, 96, 99, 100, 100, 100, 100, 102, 102, 102, 102, 105, 105, 107, 114, 115, 116, 116, 118, 120, 120, 122, 124, 124, 128, 129, 141, 141, 145.
42 | 51, 131.
48 | 12, 24, 32, 35, 62, 67, 68, 75, 75, 80, 83, 83, 84, 86, 87, 94, 96, 98, 100, 114, 113, 119, 119, 122, 123, 123, 124, 125, 128, 131, 132, 134, 135, 138, 138, 140, 140, 140, 143, 144, 144, 144, 144, 144, 145, 145, 145, 145, 146, 146, 148, 148.
54 | 72, 88, 88, 143.
60 | 10, 19, 20, 34, 36, 72, 72, 78, 81, 81, 89, 91, 92, 94, 103, 107, 108, 110, 118, 119, 120, 122, 126, 130, 134, 136, 139, 139, 142, 144, 146.
72 | 20, 26, 29, 30, 40, 40, 47, 48, 54, 58, 60, 61, 62, 64, 72, 75, 81, 82, 85 87, 100, 100, 108, 112, 119, 120, 123, 124, 127, 129, 130, 138, 144, 144, 148.

Of 2-inch No. 20 we have the following pieces at one- of a cent per square foot. Arrive at the price in precisely same way as above, taking half of the number of square instead of three-fifths, to get the price in cents.

12 | 102.
24 | 68, 94, 111, 114, 116.
30 | 129, 140
36 | 35, 36, 39, 40, 41, 79, 81, 88, 91, 94, 100, 103, 103, 109, 120, 122, 126, 128, 128, 128, 128, 134, 136, 136, 140, 146, 146, 147.
54 | 145.
69 | 17, 130, 136, 139, 144, 144.
72 | 21, 44, 45, 58, 70, 75, 76, 100, 128, 137, 139.

In the following list we give first the size of me next, the number of wire; next, the width in incl then the length in feet, and, finally, the price the whole piece, so you will have no figuring to d

¾ in., No. 19, 34 in. x 126 ft., at $4.25.
1¼ in., No. 18, 48 in. x 80 ft., at 4.00.
1½ in., No. 16, 30 in. x 70 ft., at 3.15.
2 in., No. 15, 18 in. x 73 ft., at 1.65; 18 in. x 74 ft. at $1.70.
2 in., No. 15, 18 in. x 55 ft., at 1.35; 54 in. x 122 ft. at $8.00
2 in., No. 15, 60 in. x 20 ft., at 1.50; 72 in. x 36 ft., at $3.00
2 in., No. 15, 72 in. x 33 ft., at 3.00.
2 in., No. 16, 72 in. x 36 ft., at 2.50; 72. in x 60 in., at $4.00
2 in., No. 16, 72 in. x 58 ft., at 3.80.
3 in., No. 14, 72 in. x 70 ft., at 6.20; 72 in. x 100 ft., at $8.8
1½ in., No. 19, 2 ft. x 48 ft., at .75; 3½ ft. x 32 ft., at .80.
4½ x 20 ft. at .70; 5 x 19 ft. at .75; 6 x 26 ft. at $1.20.
1½-inch No. 18, 3 x 64 ft. at $1.75.
1½ inch No. 16, 3 x 11 ft. at .55.
4 x 24 ft. at $1.65; 1¼-in. No. 20, 1 x 88 ft., at $1.00.
1¼-in. No. 19, 2½ x 19 ft. at .50; 2½ x 36 ft. at $1.00.
6 x 102 ft. at $6.75.

In lots of 5 pieces, any one or assorted kinds, duct 5%; 10 pieces, 10%; 25 pieces or more, 15%. ter name a second or third choice, in case your f be gone.

A. I. ROOT, Medina, Ohi

BEES QUEENS
Smokers, Sections,
Comb Foundation,
And all Apiarian Supplies cheap. Send for FREE atalogue. **E. T. FLANAGAN, Belleville, Ill.**

I Will Exchange

For your name and address, my pamphlet "How I Produce Comb Honey," and catalog of Chaff and Dovetailed hives, T Supers, Sections, Foundation, and every thing needed in the apiary. First-class goods, and prices reasonable.

Geo. E. Hilton,
Fremont, Mich.

SPRAY
YOUR FRUIT TREES & VINES

Stahl's Double Acting Excelsior Spraying Outfits prevent Leaf Blight & Wormy Fruit. Insures a heavy yield of all Fruit and Vegetable crops. Thousands in use. Send 6 cts. for catalogue and full treatise on spraying. *Circulars free.*
WM. STAHL, Quincy, Ill.

☞ In responding to this advertisement mention GLEANINGS

BEE SUPPLIES RETAIL AND WHOLESALE
Every thing used in the *Apiary*. Greatest variety and *largest* stock in the West. New catalog, 70 strated pages, free.
Discounts to Dealers.
E. KRETCHMER, Red Oak, Ia.

WALTER S. POUDER,
162 Mass. Ave. Indianapolis, Ind.
SUPPLIES Standard Goods—Popular Prices—Catalogue Free.
"BUSY BEES"
A book telling how to manage them—10 cts. in stamps; or free to those sending names of 5 bee-keepers

BEE SUPPLIES!
send for free copy of **ILLUSTRATED CATALOGUE**, describing every thing useful to a **BEE-KEEPER**. Address
T. G. Newman, 147 So. Western Ave., **Chicago.**

Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
Eoitf Please mention this paper

Oh! The PAGE FENCE is a "BUMMER",
For you see when it is Summer
It never fails to "KEEP TIGHT"
all the while.

Then 'bout New Years it will swear off,
But when Jack Frost says "*break square off*"
It *uncoils* itself and "tapers"
with a "smile."

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

Manum's
Leather = Colored Italian Queens

Are in the lead the world over. Tested queens one dollar each. Descriptive catalogues free to all applicants.

Also wood screws $\frac{3}{16}$ longer than formerly; otherwise the same. Price $9.00 per 1000 by express; $1.00 per 100 by mail. Taps, $1.15 each.

A. E. Manum,
Bristol, = = = = Vermont.

Root's Goods at Root's Prices.

We have the best shipping-facilities in the Northwest. We can save time and freight by shipping direct on some 40 or more railroads, without change of cars, which saves handling, and goods are much less liable to be broken or smashed.

Root's 1893 No. 1 white sections, 4¼x4¼x7 to foot, 1⅞, and 1$\frac{15}{16}$, at $2.50 per 1000. No. 1 cream, 4¼x¼x1⅞ and 1$\frac{15}{16}$, $2.00 per 1000.

Write for price list and what you want.

H. G. Acklin, 1024 Mississippi St.,
St. Paul, Minn.
Northwestern Agent for A. I. Root's Bee-keepers' Supplies.

Cash for Beeswax!

Will pay 24c per lb. cash, or 27c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 32c per lb., or 33c for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio.

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Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Situation in apiary for the coming season. A. T. BALL, South Sebec, Maine.

WANTED.—To exchange extra thin foundation, and fine extracted honey, in 60-lb. cans, for bees by the pound, nucleus colonies, and queens.
R. C. AIKIN, Loveland, Colo.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange Root's goods, at his prices, to be shipped from here or factory, for white comb honey (crop of '94 preferred) in quantity lots. See ad. in another column.
B. WALKER, Evart, Mich.

WANTED.—To exchange 1 treadle Novelty printing-press, chase 10x14, lot of type, rules, borders, etc., valued at $60.00 (sample of work on application), for registered Jersey heifer, section-boxes, Hallock potato-planter, or offers.
J. F. MICHAEL, German, Darke Co., O.

WANTED.—To exchange large extractor, yellow Italian queens, fancy nuclei, hives, choice strawberry-plants, for books, groceries, or honey.
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

WANTED.—A young man with some experience in bee-keeping would like a position with a practical apiarist, where he can thoroughly learn the business. F. C. JONES, JR.,
99 South 10th St., Newark, New Jersey.

WANTED.—To exchange card printing-press and outfit complete for portable blacksmith outfit or offers. O. D. BELDING, Claremont, Va.

WANTED.—To exchange pure R. C. St. Bernard puppies for offers. Registered stock on both sides. Would like a 10-inch photo-burnisher.
SCOTT BRILLHART, Millwood, Knox Co., O.

WANTED.—To exchange one Columbia Safety bicycle for any thing I can use; also have to exchange bees in 8-frame L. hives, foundation, and break-joint honey-boards. Want beeswax.
F. H. MCFARLAND, Hyde Park, Vermont.

WANTED.—To exchange for 300 lbs. clover comb honey or safety bicycle, Appleton's American Cyclopedia, 17 vols., sheep, latest edition, and in perfect condition. Reason for selling, I have the Britannica. Honey to be delivered July 1.
J. B. ENOS, 209 Main St., Connellsville, Pa.

WANTED.—To exchange a good 6-inch Vandervort foundation-mill or 1000 and less of empty L. brood combs, A No. 1, for offers.
JNO. NEBEL & SON, High Hill, Mo.

WANTED.—Situation in apiary or market garden. References given. WM. K. BRYCE,
310 S. Dewitt St., West Bay City, Mich.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge. After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Mismated Carniolans from imported mothers, 40c each; a few hybrids, 25c each. By return mail.
MRS. FRANK BENTON, Charlton Heights, Md.

Friends, I have eight young hybrid queens for 3 cts. each, or 4 for $1.00; also ten mismated Italians at 40c each, or 4 for $1.25, and two queens, the workers of which are nearly all black; about one bee in a dozen shows a little yellow; you may have these at the same price as mismated.
H. G. QUIRIN, Bellevue, Huron Co., Ohio.

SECTIONS CHEAP!

Until sold, we will sell the sections listed below i quantities of 500 or more at $1.50 per thousand fo creams, and $1.00 per thousand for No. 2. All 4¼ 4¼ sections, open two sides.

41,000 2	inch	cream.	37,000 2	inch	No. 2.
47,000 1¾	"	"	91,000 $1\frac{15}{16}$	"	"
116,000 1⅞	"	"	20,000 1⅞	"	"
134,000 7 to	ft.	"	87,000 $1\frac{13}{16}$	"	"

253,000 7 to ft. No. 2.

PAGE & KEITH, NEW LONDON, WIS.

☞In responding to this advertisement mention GLEANINGS.

Bees and Supplies

Always on hand. Send for circular.
I. J. Stringham, 105 Park Place, N. Y

NOW IS YOUR CHANCE

To buy *cheap.* Bee-keepers' Supplies, hives, sec tions, fdn., etc. Write for price list. **ROOT'S GOODS.**
JOHN NEBEL & SON, High Hill, Mo.

BEES FOR SALE.

Italian, $4.00. Hybrids, $3.50. All in 8-fram Langstroth hives. ***WILLIAM IDEN,***
ETNA GREEN, INDIANA.

BEES! BEES! BEES!

If you contemplate buying bees and queens th coming season, write to **LEININGER BROS.** for price which will suit you. **FT. JENNINGS, O.**

Order No. 27,289 was filled in good order. I a well pleased. The hives and sections are the fines I ever saw. Every thing fits up nice.
Elmgrove, Mo., Apr. 3. GEO. W. KERN.

THE CRANE SMOKER OUT OF SIGHT.

The supplies ordered of you were received al right except 4 end-pieces of hives, which were spli off. That Crane smoker is out of sight. I conside it good enough for any one. I am more than pleas ed with those Hoffman frames, they are so easy t handle. All of the goods received are first-class.
Patronville, Ind., April 28. R. B. LARKIN.

HONEY COLUMN.

CITY MARKETS.

SAN FRANCISCO.—*Honey.*—Honey has advanced and is still advancing, in consequence of the dry season in California; for it is now generally expected that the coming honey crop will be a very light one. We quote extracted honey, according to quality, 5@6; comb, 8@11. Beeswax is scarce at 24@25.

SCHACHT, LEMCKE & STEINER,
April 23. San Francisco, Cal.

ALBANY.—*Honey.*—We are virtually out of comb honey of all grades, having less than a dozen cases on hand. Our stock of extracted is also well reduced; but as there is but very little demand now we have plenty. We quote comb honey at 10@12; extracted, 5@7.

CHAS. MCCULLOCH & CO.,
May 9. 393, 395, 397 Broadway, Albany, N. Y.

KANSAS CITY.—*Honey.*—The demand for both comb and extracted honey continues light. Stock of comb not large. We quote: No. 1 white 1-lb. comb, 14@15; No. 2, 12@13; No. 1 amber, 13@14; No. 2, 10; extracted, 5@7. Beeswax, 20@22.

CLEMONS, MASON & CO.,
May 7. Kansas City, Mo.

CINCINNATI.—*Honey.*—There is a slow demand for extracted honey at 4@7c. Prices for comb honey are nominal at 12@14 for best white. Demand for beeswax is good at 22@25 for good to choice yellow.

CHAS. F. MUTH & SON,
May 7. Cincinnati, Ohio.

BUFFALO.—*Honey.*—Small amount of honey on hand, moving off slowly. Fancy, mostly 13@14: choice, 10@12; common and buckwheat, 8@9. Beeswax, 25@28. The demand is very slow, but we are in hopes it will clean up before new arrives.

BATTERSON & CO.,
April 18. Buffalo, N. Y.

CHICAGO.—*Honey.*—There is very little if any change in this market from quotations given in last issue, the volume of business in this line being small at this season of year.

R. A. BURNETT & CO.,
May 7. 163 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—Best white comb honey is selling slowly at 14@15; dark and untidy lots, 11@13. Extracted, 7@8. Beeswax, 27@28.

M. H. HUNT,
May 9. Bell Branch, Mich.

KANSAS CITY.—*Honey.*—We quote you to-day 1-lb. comb, white, 12½; No. 2, 10; No. 1 amber, 10; extracted, 5@7. Beeswax, 22@25.

HAMBLIN & BEARSS,
May 7. Kansas City, Mo.

CLEVELAND.—*Honey.*—The demand for honey is somewhat lighter than last week. Prices are about the same. No. 1 is selling at 13@14; No. 2, 10@11. Beeswax, 23@25.

WILLIAMS BROS.,
May 7. 80 & 82 Broadway, Cleveland, O.

ST. LOUIS.—*Honey.*—No material change. Honey is slow sale at 2¾@3 for extracted. Prime beeswax, 6c.

D. G. TUTT GROCER CO.,
May 8. St. Louis, Mo.

BOSTON.—*Honey.*—We quote you our market on comb honey at 12@14. Demand fair, supply fair. Extracted, 5@7. Demand and supply fair. Beeswax, 25c; demand fair, supply light.

E. E. BLAKE & CO.,
Successors to Blake & Ripley,
May 7. Boston, Mass.

Imported **Carniolans**, bred in 1893, $5 each; tested 1894 Carniolans in June, $2; bred from imported queens producing only gray bees. Untested, May, $1. Foreign orders, $6, $3, and $2. Safe arrival at any postoffice in the world.
MRS. FRANK BENTON, Charlton Heights, Md.

TESTED Italian queens, $1.00; untested, 65 cts; select tested, $1.50. C. H. STEWART, Sparta, Tenn.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

S. T. FISH & CO.,
189 South Water St., Chicago,

Offer Wisconsin white-clover and basswood honey, in barrels and half-barrels, at 6c per pound. This is the finest product we have handled for some time. California white-sage, in 60-lb. cans, at 6c per lb. California comb honey, 48-section cases, choice, 12c per lb.; fancy, 13c.

EDWIN ROBINSON. *W. M. GRAY.*

Robinson & Gray,
SUCCESSORS TO
B. F. Southwick & Co.,
Foreign and Domestic Fruits, Canned Goods.
47 & 43 South Market and 5 & 6 Chatham Streets.
Headquarters for Vermont Shipments of White-Clover Honey.

It will be the endeavor of the new firm to meet the wishes of their patrons in the future as the late firm has in the past.

Thanking you for the many past favors received by the late firm, we hope to be favored with a liberal share of your patronage in the future.

All orders and inquiries by mail or otherwise will receive prompt attention. Very respectfully,
Boston, April 2, 1894. ROBINSON & GRAY.

☞ In responding to this advertisement mention GLEANINGS.

Bingham Perfect Smokers.
Cheapest and Best on Earth.
Patented 1878, 1882 and 1892.
Have all our new improvements.
T. F. Bingham,
Abronia, Mich.

5-BANDED GOLDEN ITALIAN
Queens, $1.00; 6 for $4.50. Pure B. P. Rock, S. C. B. Leghorn, and L. Brahma eggs, 75c per 13. Catalogue free. **Chas. H. Thies, Steeleville, Ill.**

The Family Printing Outfit.

75 letters, points, etc., with holder, tweezers, indelible ink, pads, etc., for stamping names on linens, cards, etc., put up in neat box and mailed for 50c. Send for catalogue. Address
G. W. BERCAW, Fostoria, O.

Those Silver-Gray Carniolan Bees.

I have a queen-rearing yard 5 miles from other bees, where I will rear those beautiful gentle Carniolan queens, at $1.00 each (untested); $5.00 for 6, or $9.00 per dozen. Send in your orders and see how soon I can send the queens. Safe arrival and satisfaction guaranteed. **Miss Amanda Atchley,**
Beeville, Bee Co., Texas.

☞ In responding to this advertisement mention GLEANINGS.

TESTED

Queens are usually sold for $2.00. I will explain why I wish to sell a few at less than that. As most of my readers know, I requeen my apiary each spring with young

QUEENS

From the South. This is done to do away with swarming. If done early enough it is usually successful. It will be seen that the queens displaced by these young queens are never more than a year old: in fact, they are fine tested Italian queens, *right in their prime;* yet, in order that they may move off quickly, and thus make room for the untested queens, they will be sold for only

$1.00.

Or I will send the *Review* for 1894 and one of these queens for only $1.75. For $2.00 I will send the *Review*, the queen, and the book "Advanced Bee Culture." If any prefer the young laying queens from the South, they can have them instead of the tested queens, at the same price. A discount given on large orders for untested queens. Say how many are wanted, and a price will be made.

W. Z. HUTCHINSON, Flint, Mich.

Italian Either 5-banded golden or 3-banded leather-colored. Queens.

Untested, $1.00 each; one-half dozen, $4.50. Tested, $1.50 each. Select tested, $2.50 each. Extra select tested, fine breeding queens, $3.50 each.

E. A. SEELEY, Bloomer, Ark.

Clover Queens.

500 Golden Queens to be sold in May and June at 50c for untested; tested, $1.00; breeders, $2.00. I will refund the money to any one not satisfied.

G. B. ROUTZAHN, MENALLEN, ADAMS CO., PA.

Apiary for Sale.

120 colonies in fine condition in every respect, with privilege of location; good bee-cellar and extracting-house, for five years. Address

Box 366, Richland Center, Wis.

Bees from Northern Queens

Have no foul brood, dysentery, nameless disease, nor paralysis; winter well and are unsurpassed as honey-gatherers. One queen, $1.00; 4 for $3.00.

H. ALLEY, Wenham, Mass.

For Sale.

30 colonies of Italian bees in A. I. Root's eight-frame Dovetailed hives, in good condition. Safe delivery guaranteed. *JOHN GRANT.*

Batavia, Clermont Co., O.

Sections, Bee-Hives, and other Bee-Keepers' Appliances at Bed-rock Prices.

Best of Goods at Lowest Prices.

Write for free, illustrated catalogue and Price List.

G. B. Lewis Co., Watertown, Wis.

LAWS' ITALIANS IN THE LEAD,

and are in every State in the ***Union*** and several ***foreign countries.*** Queens ***yellow all over.*** Fine ***breeders*** always on hand. Four and five band, $2.00; straight five-band, $3.00. Untested, $1.60; 6 for $4.50. Reference, A. I. Root.

W. H. LAWS, Lavaca, Seb. Co., Ark.

HUSTLERS!

Read what one of the largest bee-keepers of this country says: "The queens (two dozen) came promptly. They are an extra fine lot. The bees are finely marked, gentle, and ***hustlers*** when it comes to ***honey.*** I have no trouble in picking them out now from over 600 colonies."—W. L. COGGSHALL, West Groton, N. Y., Oct. 17, 1893.

Prices for queens ***bred*** for business from above strain, ***5-band,*** are, May, $1.00; later, 75c; ½ doz., May and June, $4.00; doz., $7.50. July and later, six for $3.50; doz., $6.50. Single queens ***warranted*** purely mated. I ***guarantee*** all queens to arrive safely and to be ***good serviceable*** queens. Send for free circular. Draw money order on, and address, **J. B. CASE, Port Orange, Fla.**

For Sale.

Thirty colonies of Italian bees in July, at $4.00 each, all in Dovetailed hives, all worker combs, in wired Hoffman frames. Untested queens, May and June, 75c; tested, $1.50. Two-frame nucleus with queen, $2.00. C. F. BATHAM, Houstonia, Mo.

Italian Queens Cheap.

My queens are as good as the best. Untested, 65c each; 3 for $1.75; 6 for $3.25. Tested, $1.25. Select tested, yellow to the tips, breeders, $1.50. Safe arrival guaranteed. G. E. DAWSON, CARLISLE, ARK.

FOR SALE.—Rooted cuttings and plants of ***Chrysanthemums,*** such as Childs, Lincoln, Widener, Wanamaker, Spaulding, Boehmer, Waban, Canning, and many others. Will send by mail prepaid for 50 cts. per dozen; if by express, will send larger plants, not prepaid. J. S. WARNER, Medina, O.

MONEY RETURNED

to all buying **PORTER BEE ESCAPES** not satisfied after testing them. Prominent bee-keepers everywhere use and highly recommend them as the best. No others received a World's Fair award. Testimonials, etc., free. Prices: Each, postpaid with directions, 20 cts.; per doz., $2.25. Order from your dealer, or the mnfrs., **R. & E. C. PORTER, LEWISTOWN, ILL.**

FOR BEGINNERS PROFITABLE BEE-KEEPING.

By Mrs. Jennie Atchley, of Texas.

In the first number of the AMERICAN BEE JOURNAL for May, 1894, Mrs. Jennie Atchley commences her **School in Profitable Bee-keeping.** She begins at the very bottom, and freely gives the results of her 20 years' experience in **Successful Honey Production and Queen-rearing.** If you want to learn nearly every thing about bees, **now is the chance.** Subscribe for the "Bee Journal" for a year, and read what Mrs. Atchley has to say in her department—"In Sunny Southland." Her "School" will continue indefinitely. Tuition free.

THE BEE JOURNAL was established in 1861, has **32 pages every week,** and costs only $1.00 a year. It contains the writings of the best and most successful bee-keepers in America. Sample copy free. Also, 200-PAGE BOOK (Newman's "Bees and Honey") FREE to each **New Subscriber** for a year. Better begin with the 1st number in May. Hurry up!

GEORGE W. YORK & CO., 56 FIFTH AVE., CHICAGO., ILL.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by A. I. Root.
$1.00 per Year
Medina Ohio

Vol. XXII. MAY 15, 1894. No. 10.

STRAY STRAWS

FROM DR. C. C. MILLER.

MY PERCOLATOR makes nice work, but takes 24 hours to make 5 gallons.

DADANT USES, if I figure rightly, a comb surface equal to 15 Dovetail frames.

FROGS are reported in Germany as catching bees when at work on white clover.

$750 AND COSTS was the penalty inflicted on H. Eichler, in Germany, for adulterating honey.

THAT LIVER tasted good, friend Root, p. 386; but if you want something fine, just try *calf's* liver.

I WONDER if chemically pure sugar, even if expensive, is not a desideratum for shipping queens.

TOOK OUT OF CELLAR nearly all my bees April 18. Tiptop condition. Never saw so few dead bees on cellar-bottom.

GORGEOUS SPRING! To-day, April 30, bees have all they can do on hard maple, plum, and dandelion. Cherry just out.

THE LAYENS HIVE, which is quite popular in Europe, has about three times the capacity of an 8-frame Dovetail.

YE EDITOR has put me on the fence, p. 362. All right. I'll stay there till I see which side has most solid ground to alight on.

THAT V EDGE. Say, Ernest, that talk of yours on p. 383 kind o' staggers me, but I won't give up till I have a consultation with the bees.

DID YOU KNOW that Hasty was a poet? Witness the following from *Review:*

And the Smith named Jake contributes the fact
That, although nice honey by frost is cracked,
It will stand all the zeros you please intact,
If through summer it's up in the garret packed.
[Kur-ract.]

GERSTUNG thinks the diseased condition of bees in spring is consumption, caused by eating sugar instead of honey during time of breeding or activity.

THE *Bee-keepers' Quarterly*, Heddon's new paper, strikes out in a new field—it's all editorial. But it seems a good while to wait three months between meals.

NATURAL SWARMING, according to replies in *A. B. J.*, seems to be growing in favor as compared with artificial increase. But I never want to see another swarm.

THE EDITOR HOLDS, page 367, that it's all the same whether you give more room in a hive at the side or below. Can any one confirm or refute that?

ADULTERATION is not entirely confined to this country. *Luxemburg B. Z.* reports a purchase of three boxes of honey from a peddler, but the second and third boxes contained only soft soap.

IF YOU'RE UNFORTUNATE enough to have lots of burr-combs, raise your super to-day and let it right down again. To-morrow you can take it off dry, for the bees will empty the honey. That's the way I do with honey-boards.

FIRE IN CELLAR fits my case, although it may be bad for others. After experimenting two winters without fire, I fired up again last winter, and lost only one colony out of 259, besides 7 that [printer, have you got any small type?] STARVED.

I never used a stove but one year, and then I lost nearly all of the bees.—*Doolittle.*

I never used a cellar without a stove for many years, except two years, and then I lost heavily in bees.—*Miller.*

What makes the difference?

FOUL-BROOD CURE reported in *Lux. Bienenzeitung.* Wash the bottom-board with 5 per cent carbolic acid; put 1¾ oz. formic acid in one of the outside combs, and repeat the dose in 8 days. [Wouldn't have any faith in such treatment. We have tried essentially this, and it was a failure.—Ed.]

A GRAIN OF POLLEN is mentioned on page 377 as "conveyed in some occult way through the whole length of the silk," to make a perfect ear of corn. Doesn't a pollen grain alight on the end of each silk and stay there *growing* down to the grain on each ear?

A SCHOOLTEACHER in Germany distributed 4 lbs. of sunflower seed among his scholars, and gave four prizes of honey at harvest to the four who had most plants; 1500 plants were in the village, instead of 10, as formerly, and the next year none of the scholars ate the seed given them, as some did the first year.

C. J. H. GRAVENHORST, the able editor of *Deutsche Illustrierte Bienenzeitung*, mentions with evident approval the cordial feeling that prevails among editors of bee-journals in this country. He seems to think the writers are all on good terms, but he hasn't noticed how Taylor is going for my scalp.

DOOLITTLE properly advises making special dummies *after* you're satisfied you want to use only 4 or 5 frames. Possibly you may not want to continue with so few frames, and you can experiment with thin dummies, or with a single dummy and the vacancy filled with hay. I used a good deal of hay one year.

TOP-BARS 1$\frac{1}{16}$ square, with $\frac{1}{4}$ inch between, in 15 colonies, says Hon. R. L. Taylor, in *Review*, gave "scarcely a sign of a burr-comb except where a frame was improperly spaced. . . . The results were very satisfactory, and, unless seasons of more abundant honey-flow produce different results, leave nothing to be desired."

THE AVERAGE DISTANCE that bees naturally space combs is 1$\frac{1}{2}$ inches, according to Doolittle, and 1$\frac{3}{8}$ according to Mrs. Atchley. Which is right? Or do bees space closer in a warm climate? [We are coming more and more to believe that bees don't have any average distance, else why do authorities disagree? But, why ask what spacing the bees prefer? Rather ask what spacing gives the most worker brood, least drone brood, the most honey in the supers, and the truest combs.—Ed.]

HURRAH FOR YOU! I believe you've struck it with that soft-walled foundation described on p. 383. At any rate, it looks hopeful. Get ready for an order from me. [But, say, Doctor, do we want foundation so soft? We should be afraid just yet to offer it to the public, for *fear* it would buckle between the wires in drawing out, and if not put on wires for fear it would stretch. From some little tests we have made, there is danger of this. But by making the sheets very heavy we get beautiful comb. The Given foundation, such as we have seen for the brood-chamber, is heavy, but such heavy wax is expensive.—Ed].

GENERAL CORRESPONDENCE

GALVANIZED IRON FOR BEE-KEEPERS.

WAXING GALVANIZED CANS.

Friend Root:—In regard to galvanized tanks, three years ago I was forced to have me three large tanks made for storing honey; and as I wished to have them very stout I had each of the three tanks, holding 50 gallons, made out of galvanized iron. I had all of them made with a large-size molasses-gate at the bottom. I had two made for extracted honey. They were about as tall as a common alcohol-barrel. The one for comb honey was made larger across, and not so tall—say about half. I had them made to store honey in for my own use. When I released them my wife told me I should not put any honey in them as they were. "What shall I do, wife? I have bought the tanks at a cost of $4.50 each, and they are all I have to store our surplus honey in." "Oh!" said she, "that can be very easily remedied. You let them alone and I will fix them all right." So I thought it best to let her have her own way. She washed them out clean and nice, and in a couple of hours she called me in to look at our tanks. What do you think she had done to them? She had given them about two coats of wax, and no honey could come in contact with the cans. I have been using said cans now for about three years, and I do not want any thing nicer, though I see one of the cans has got some of the wax coating knocked off; and if my bees do any thing this year I will have the cans rewaxed. I do not think they would do well to ship unless the cans are well cared for, as the coating is liable to be knocked off when jarred much; but from my experience I think they are as safe as any thing you can store honey in, if well waxed. It costs very little to do it, and it is not much trouble to wax them. One good coat is enough.

Franklin, Tenn. G. W. REAMS.

[And yet, friend R., you do not know whether the cans would not have done just as well without the waxing. See the following letter:]

GALVANIZED IRON FOR HONEY-UTENSILS.

In response to an article in April 15th GLEANINGS, page 334, in regard to galvanized vessels injuring honey, I would say that I use a large galvanized pan the year round. I draw every drop of honey from the extractor into this pan, and I use it during the winter for liquefying granulated honey. I never could detect any injury to the honey. I send you a sample of honey herewith, that has been melted three times in this pan. It is slightly darkened by getting a little too hot at one time, caused by the water getting too low in the sheet-iron pan containing the galvanized pan. If there is any injury from the use of galvanized vessels, we should all know it.

Bees wintered well here. Out of 108 I lost 6 colonies. I took 44 colonies from the cellar March 17, and they gathered quite a little pollen from hazlenut, and *some* willow. I returned them again on the 24th. on account of the cold spell, and removed them on the 13th of April, since when they have gathered honey from the soft maple every fair day.

Hillsboro, Wis., Apr. 23. ELIAS FOX.

[This is valuable and to the point. We shall take pleasure in having the honey submitted to a chemist—not to ascertain its purity, but to determine whether there is present enough of the zinc to be poisonous to even a child.

We should be very glad to hear from others, especially from the California bee-keepers, because it is so important to know whether or not there is any danger in the use of such metal when used for storage-tanks —ED.]

NO BAD RESULTS FROM THE USE OF GALVANIZED TANKS.

In reply to your article, p. 334, in regard to galvanized tanks, etc., being poisonous, I will say I have been using such a tank, 110 gallons, constantly, for three years, and have never experienced any bad results. I always keep about 15 or 20 gallons in the tank, from one season to another, from which I send you a sample that has stood for 12 months. Please test it and let us hear further from it, as I have been anxious to get more light on the subject.

Hermanville, Miss., April 25. R. W. BRUCE.

[Yes, so are we.—ED.]

PREVENTION OF SWARMING.

A NEW PLAN FOR CONSIDERATION.

By Edson Hains.

Swarming as related to the production of comb honey is a problem that has engaged the attention of the bee-keepers of the country for many years, for the reason that a swarm of bees is likely to leave the hive at the time when they are most needed, taking with them so many bees that the parent stock would be so weak as to store but little if any surplus honey, as the honey season would often be over by the time they could regain their strength, and the colony would be without surplus honey, and still have a hive full of bees to eat the honey through the autumn months, but too old at the beginning of winter to be of any use in the spring, when we should find the colony weak in bees which were young enough to help in caring for the brood for the building-up of the colony for another season.

My method of preventing swarming consists in placing the entrance of the hive so as to let the bees in at the side of the combs instead of their going on to the ends of them. This enables me to put a queen-excluding division-board back of the first and second combs. Back of the excluding division-board I place the remaining eight combs and queen. I then cover them with another piece of zinc excluder, confining the queen and brood to the eight frames.

When I put on the surplus case I place it so the bees can have ready access to it from combs in front of the excluder, without passing through the zinc. This partially keeps the honey-gatherers out of the brood-nest, and saves them the trouble of going through the zinc heavily laden with honey, and it prevents them from emptying their load right in the brood-nest where the queen is about to lay her eggs. As the brood-nest is not overcrowded with bees, the queen lays her eggs without being bothered, and the nurse-bees are not incited thereby to prepare for swarming. In this way the desire to swarm on the part of either bees or queen is in a great measure prevented; and if the queen, in her efforts to leave the hive, should work her way through the excluder, as she might if a small queen, and clipped, she has yet combs to go on to; and, as I see the bees returning, I can open the hive; and if I find the queen in front of the excluder I return her to the brood-nest.

As an experiment, in the fore part of the season of 1893 I placed a zinc excluder over the hive-body, full of surplus combs for extracting; above the zinc I placed a hive containing brood-combs, bees, and queen. When I went to extract the honey, the upper story, where I put the queen, was full of brood and honey; but failing to find the queen or young brood I looked below, where I found the queen and a few square inches of very young brood in one frame. All, excepting that one, were full of sealed honey. I extracted the honey and returned the queen to the upper story, where she remained until I prepared the stock for winter. Had I left the colony (a strong one) without an excluder, the bees most likely would have swarmed and the queen been lost. If lost, a batch of queen-cells would have been started, and probably the bees would have left the hive just at the beginning of the basswood flow. This is the principal reason why bees in box hives (where the extractor can not be used) are so apt to swarm, and so rarely to be of any profit to the bee-keeper. The same condition renders apiculture unprofitable in movable-frame hives not guarded against swarming by some one of the various methods.

The question may be asked, "How do the drones get out to fly ?" The remedy is, simply to place drone brood which is from the best queens (and especially if queen, drones, and workers are good) in front of a queen-excluding division-board. Undesirable drones should be kept in the brood nest or destroyed. Virgin queens, being smaller, will be able to get through the excluder to take their flight. The question has been asked, "Why not nail an excluder in front of the entrance?" This is better than nothing, but stops more or less the ventilation of the hive; and drones trying to come out clog the entrance; and if the queen should get through the excluder she would be outside of the hive, and more likely to get lost; besides, drones can not by this method be given liberty to leave the hive at pleasure. If the hive is a box hive, place it over a hive-body filled with extracting-combs, with a zinc excluder between them.

Bedford, O., April 6.

[We will explain to our readers, that Edson Hains is a son of J. B., of Hains-feeder fame. Mr. Hains, senior, while here, fully explained the principle; and there is one point, perhaps, that it will be well to emphasize in order that our readers may get clearly before them the principle that is supposed to deter swarming. The two combs next to the entrance (separated from the rest of the other combs containing brood, queen, and worker-bees, by perforated zinc), are intended to act as a sort of ladderway for easy access to the super above. Of course, over these two combs there is no perforated zinc. The bees may crawl upward on the first or second, and travel straight up into the super without passing zinc. It is assumed that the bees dislike to go through the metal; and if there is a shorter and easier route they will take it in preference to going through the zinc twice. Whether the bees will invariably take the shorter of two routes to the super through the hive, we can not say; but Messrs. Hains say that they do. That being the case, the bees will be more likely to deposit surplus honey in the supers, and give the queen ample room for laying below in her apartment of 8 combs surrounded by perforated zinc on the exposed sides. This unlimited room is expected to take away the desire for swarming. We had intended to make an engraving; but Mr. Hains' meaning is sufficiently clear so any one will get the idea.

This method of non-swarming can be very easily practiced with the old-style ten-frame Simplicity hive, because with this the body can slip endwise or sidewise to give the necessary entrance; but with the Dovetailed hive it may not be so easy. However, this can be done: Confine the queen to six or eight combs, as the case may be, leaving two combs for ladderways to the super. Close up that part of the regular entrance communicating with the six combs. As the remaining part would hardly be large enough, a hole could be bored directly over it, so the bees would not be crowded in passing to and fro.

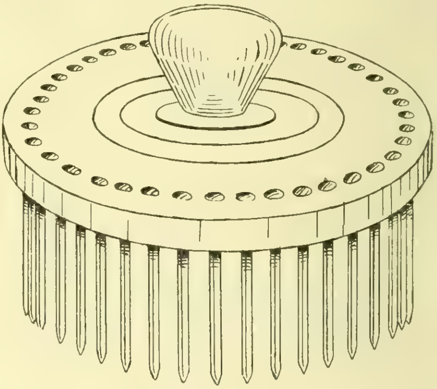
Mr. Hains, senior, informs us that a trial of a few colonies on this plan was very satisfactory, and that other colonies not so arranged swarmed.—Ed.]

A GERMAN INTRODUCING-CAGE.

HOW IT MAY BE USED.

By Karl R. Mathey.

The apparatus below serves a double purpose; first, in case of a division of a colony on movable frames, the queen may be confined to the comb in one frame, so that she can not run away, and afterward she may be returned to the hive. If the queen becomes afflicted with lice, take the apparatus in the hand and hold it near her till a crowd of bees gather around her; then put the cage down over the queen, and she will then be penned in with a lot of workers. After this confinement of the queen has taken place, with a number of bees, there begins a pushing and crowding and jostling on the part of the confined bees, to whom the imprisonment is by no means agreeable. By this means, it will be seen, the lice are completely removed from the queen in a mechanical manner. After a while the cage is removed, when the cleaned queen, lively and glad, will retire, the lice having entirely disappeared from her. By this simple imprisonment of the queen, with as many bees as the apparatus will hold, it will be seen that the bees, without knowing it, have relieved her majesty of her tormentors.



A GERMAN INTRODUCING-CAGE.

This tool is of marked service in the introduction of queens. The method of procedure is as follows: Take the cage and invert it skillfully over the queen; then push a piece of paper under it and carry it to a comb, pressing the cage gently against the comb, at the same time drawing the paper out; then push the points into the comb far enough to make the cage stay, and then put the comb where the bees can not molest the queen.

After the new queen is in position, leave her in the cage till the bees are as quiet as they usually are on the combs, after which she may be released. The freeing of the queen must take place with the greatest quietness. If a fine wire be attached to the knob of the cage, and the other end of it be pushed up through a small hole in the cover, the cage may be lifted up without removing the cover, but not entirely removed. Then the bees will let the queen free themselves, and receive her safely in this way; after which the hive may be opened and the cage taken away.

Medina, O., May 1.

[This cage may also be used for confining a valuable queen to a single comb for a few moments while the other combs are being handled —as, for instance, extracted. When all the combs are replaced, except the one the queen is on, the cage may be removed and the comb put back. When a queen to be introduced is confined, we feel quite sure that, at the proper time, the bees would gnaw under and release her without any attention on the part of the apiarist.—Ed.]

HOW TO KEEP QUEENS WHEN WE HAVE A SURPLUS.

AN EXCELLENT SUGGESTION.

By Mrs. Jennie Atchley.

For the last two years I have not had a chance to put in practice my plans; but I have tried them sufficiently to know that it is an excellent way to keep queens that we have no immediate use for, and at the same time we wish to keep the nuclei at work raising queens as fast as the young queens have laid two or three combs of eggs. I used to keep them caged on a table, ready to go at a moment's notice, when an order came. Well, sometimes orders did not come for several days, and my queens, of course, were more or less injured if kept too long in this way; and to make it profitable we can not afford to let the nuclei keep their queens till orders come to take them. To overcome this trouble I went to work and constructed a lot of small hives, just large enough to hold two sections 4¼ inches square by 1⅞ inches wide. All these sections that we had unfinished we lay by to go in our little nuclei. Now, we could take from fifty to one hundred workers, or enough to keep the queen in good shape. It is no trouble to speak of, to prepare two or three hundred of these little nuclei, something after the little Alley nuclei. We may use little frames if we choose. I use the sections, as they usually have plenty of honey to last the queen and bees a month or more, and the queen will go to laying, and assume the same attitude of a large colony. Then the queen is never so filled with eggs that it would be dangerous to cage and mail her right off. I do not like to cage and mail a queen that is in full laying plight without giving her time to unload herself of eggs. Well, the little-nuclei plan has the queens in good shape to be mailed at once without any danger of being injured.

To keep the queens and bees from swarming out I use, over the entrance, one perforation of queen-excluder zinc, and robber bees will never enter through the zinc to amount to any thing. These little hives can be placed on a shelf in the shade, moderately close together. We may make a record of where each queen was taken from; and if we keep any of them long enough they can be tested, and all the finest ones selected to fill orders for select queens. Robbers have never bothered our little hives, as we seldom have a surplus of queens till the weather gets warm and honey is coming in so there is no danger of robbers. I do not like the idea of raising queens in little hives, as the queen and bees are too likely to swarm out, as we can not keep excluding zinc on till the queens have mated, which gives them every chance to leave. If the bees should take a notion to swarm out of the little hives, where our laying queens are, there will always be bees enough return to be a good retinue for the queen. Then these little nuclei are good to introduce another queen to as soon as one is sold out. I think I can raise a third more queens with a given number of nuclei by this method. These little hives can be made cheaply at the factories, as scraps will answer for them. If you do not think this a good way to keep your surplus queens, just try it.

Beeville, Texas, Jan. 27.

[We are sure this method of keeping queens is excellent, and may with profit be put in practice by other queen-breeders who desire to send out queens by return mail. These little nucleus hives are similar to those used by E. L. Pratt, then of Beverly, Mass.—Ed.]

BEES AND FRUIT ON THE ISLANDS.

A REPLY TO PROF. COOK.

By Thaddeus Smith.

As Prof. Cook, in Gleanings of March 15, has called in question the correctness of my statement in regard to bees and fruit fertilization on the islands of Lake Erie, will you kindly allow me, through the same medium, to confirm my statement by the testimony of others? As it was possible that I might be in error in regard to some of the statements, I sent a copy of Gleanings containing the discussion, to Mr. George M. High, of Middle Bass Island, Ohio, and I asked him, if there were any misstatements of facts, to correct them, and to give me his experience in regard to the matter. Mr. High has lived on the island for 26 years, and has been engaged in fruit culture all the time. He is a very close observer of every detail pertaining to fruit culture—an intelligent and reliable gentleman. He writes me as follows:

> Some fifteen years ago my nearest neighbor kept a few stands of bees, and, of course, I noticed them upon plants and trees during blooming-time. Since then no bees have been kept here, yet I can see no difference in the fruit production. For more than a dozen years I don't recollect of seeing a honey-bee on the island. We have a few bumble-bees, but in such small numbers that they could not begin to do the work of fertilization, if it were necessary. I think, with you, that bees are not required here to fertilize fruit. The immense crops grown here last season, and the many seasons before, would disprove the theory. I have two Lombard plums that have set a good crop of fruit every year since 1886. No, you need take nothing back, for I believe that we have grown as good fruit, and as plentiful, in the past 15 years as when bees were kept on the place next to ours.

Middle Bass Island contains about 700 acres, and most of it is under fruit culture. Mr. High writes that he has nearly 1000 fruit-trees, and is still planting more this spring. North Bass Island—two miles north of the former—has 600 acres, and is also noted for its fine fruit without bees. The Old Hen Island is four miles north of North Bass, six miles west from Pelee Island, and much further from the main shore or any other place where bees are kept. It has about 12 acres. A neighbor was telling me several days ago about taking a little excursion party there last summer, and incidentally remarked that there were large quantities of the finest and largest strawberries grown there that he ever saw. Other fruits have been lately planted there, but I don't know whether they are bearing or not. I will investigate this summer.

Pelee Island, Ont., Canada.

RAMBLE 108.

CLAREMONT; PROF. COOK AND HIS NEW WORK AT THE COLLEGE.

A very fertile district surrounds Ontario, and its productiveness is seen not only in fruits and beets, but small fruits do equally well. There was grown, on two-fifths of an acre of land, 5333 boxes of strawberries, which were sold for $365, or at the rate of $900 per acre. The potato-grower is also in his proper element here, for two crops can be taken from the soil each year. An Eastern man arrived, bought some land, or, rather, bargained for it, and raised enough potatoes in one year to pay for it. Of course, the prices were happily in favor of the producer.

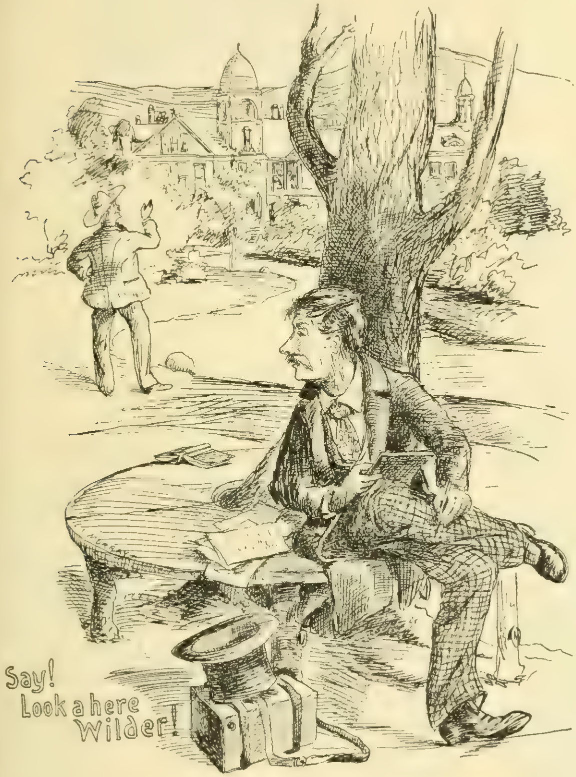
This is also a location noted for rapid house-building. A gentleman purchased a small ranch, upon which there was a field of barley. He gave notice to the man who owned the barley that a certain portion of it must be cut early the next morning. The barley was cut, loads of lumber were immediately hauled on, hammers and saws resounded, and at nightfall the builder gathered his family around the new fireside in his new house. Of course, the house was not very pretentious. The rooms were not numerous, but were elegantly frescoed with illustrated newspapers. If the proper enjoyment could not be found in the house it could be found outdoors, for at that season rains do not interfere, and such great whiffs of climate a person can here get into his system!

A pleasant ride of four miles through more or less orange-groves landed us in Claremont, and in front of the college buildings where Prof. A. J. Cook now spends the most of his time imparting knowledge to the rising generation. Claremont is a brand-new town, only a few miles from Pomona and the college bearing the name "Pomona College." It sort o' blankets Claremont, and its name is not so prominent as it deserves. The town now consists of magnificent distances, with now and then a house upon what will eventually turn out to be a street-corner. There is, therefore, not much regularity to the town, and the next lot to a fine residence we find in its primitive condition of brush in variety, greasewood predominating. The college is embraced in two buildings—the Sumner Hall and the Cyrus Holmes, Jr., Hall. The latter is the larger of the two buildings, and contains the classrooms, chapel, museum, and various other rooms. I brought the camera to bear upon the buildings, and am sure the readers of GLEANINGS will be interested to see a portion of Prof. Cook's new home.

POMONA COLLEGE AT CLAREMONT; PROF. COOK'S NEW HOME.

The Sumner Hall was erected for a hotel; but the boom dropped out of the hotel scheme; and the college scheme, being the more healthy of the two, the building was absorbed, and is used exclusively for the ladies. The building is fair to look upon, just as some ladies are, and is painted, of course, just as some ladies are.

I kept friend Wilder just as far away from the building as possible. Of course, the Rambler, being such an old duffer, had nothing to fear; but my companion, being young and susceptible to sly glances, I had to frequently admonish him about the thorn and the rose. He behaved himself remarkably well, however; and when we found Prof. Cook in the museum, all thoughts of the fair sex were banished. Like all of the surroundings, the museum is new, and the collection looks small beside the extensive museum in Lansing, Mich.; but it is evident, from the rapid additions now being placed in the cases, that the museum will be a grand success. Prof. C. enthuses his students to become collectors of every thing curious; and I will drop the hint here, if any person can send specimen birds, insects, fossils, or curios, they will be thankfully received and properly credited. Mr. Wilder, being an expert bird-undertaker, was interested in the museum. Their conversation ran largely to cross-beaks, hook-bills, sharp-shins, etc. Prof. C. said his sharp-shins had all gone to the midwinter fair, where they were posing for the curious to look at. They wound up their bird-talk on a disgruntled-looking pair of ducks. Prof. C. emphasized the remark that he was not a duck-man. I heard a person, not long ago, irreverently refer to a certain member of the fair sex as a duck of a woman. In that light I was glad to hear Prof. C. make the remark. A little later, however, he seemed to reverse his opinion by saying that there must be something wrong with all of those California bachelors who would not so much as try to cheer their lonely cabins with a wifely fixture. Prof. C. is certainly well provided for in that matter, and has a model home in a little cottage near the college.


Say!
Look a here
Wilder!

I was happy to find Prof. Cook alive to the interests of the honey-producers of California; and as members of the State Association we discussed the most vital points at issue; and the most vital of all points, we agreed, was the marketing of our products. It is proposed to make that the issue until something is accomplished. The fact is ever before us, that not much can be accomplished without the co-operation of the producers. The hint is, therefore, dropped that our bee-keepers can be thinking and acting upon it during the coming season.

Prof. Cook is now in a fair way to own an apiary near the college, and it is hoped that the efforts now being advanced will result in the establishment of an experiment station here. The college has upon its roll nearly 200 students, and no doubt a large class would be interested in the study of the wonders of the bee-hive. It would seem that, if students can be interested in the study of bee culture anywhere, it would be in this honey country; and though the students may not hereafter become bee-keepers, it is safe to say that many of them will become intelligent orchardists. Prof. Cook believes in object-lessons, and puts cheese-cloth bags over various branches of fruit-trees, excluding the bees from those parts, and showing the value of the bee in the proper pollenization of the flower in order to secure fruit. The student is thus made to appreciate the mission of the honey-bee, and to become its warm friend. With his duties in the class-room, with the bees, his Jersey cow, and bicycle, Prof. C. is a very busy man.

Claremont has a splendid backing in the snow-clad San Antonio Mountains, the highest peak bearing the familiar name of "Old Baldy." The water from San Antonio Canyon provides water for an extensive irrigating system; also for power for the electric lamps of Ontario and Pomona, and will soon be harnessed to a line of street-cars from Claremont to Pomona. Though hard times now pinches the pockets of the people here as well as elsewhere, the town is sure to grow, and to become noted in the future annals of bee culture; at least, that is the wish of the RAMBLER.

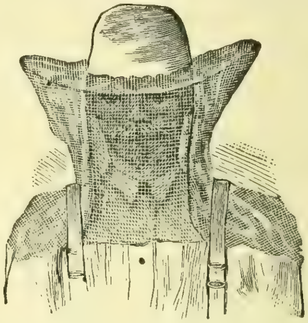
HOW TO WEAR A VEIL

WITHOUT TUCKING IT INSIDE THE COLLAR.

When it is necessary to wear a veil in hot weather, who has not wished that there were some way of holding it down, aside from that of tucking it inside the collar? When the neck is hot and sweaty, how it feels with a sort of muffler pressed close against it by the collar! Besides this, the veil is held suffocatingly close to the face. All this may be avoided, and I'll tell you how. In a hem in the bottom of the veil run a string, leaving about a foot of the hem, right in front, unoccupied by the string. That is, let the string enter the hem at about six inches to the right of the center of the front; pass it around the back of the neck, bringing it out of the hem at a point six inches to the left of the center. The projecting ends of the string must be long enough to pass under the arms, cross at the back, and then be brought around and tied in front. The string holds the edge of the veil securely out upon the shoulders; while, if the right length of hem is left without a string in front, that part will be drawn snugly across the breast.

To Mr. Porter, of bee-escape fame, belongs the honor of devising this unsurpassable way of holding down a bee-veil.—*Bee-keepers' Review, April.*

[This is a modification of a plan we use in our apiary. We tuck the corners of the veil under the suspenders in this fashion. As a general thing, it is not comfortable to wear either coat or vest in the apiary.



By the way, the half-tone, also from the *Review*, is a splendid likeness of Mr. Hutchinson. —Ed.]

MANUM IN THE APIARY.

MAKING SOFT SOAP; FEEDING TO PREVENT STARVATION.

By A. E. Manum.

"Hello, Leslie! You have taken me by surprise, surely."

"What in the world are you doing now, Manum?"

"Oh! I am making soap. My wife is determined to have soft soap to use. She thinks she can't get along without old-fashioned soft soap with many kinds of work; and to please her, and to keep peace in the family, I went at it this morning. I offered to give her $1.00 per barrel for the 3 bbls. of ashes, to use on my strawberries, and 10 cts. per lb. for the soap-grease she has saved during the winter; and, besides, $2.00 for my day's work in making the soap. But, no use; the soap she *must* have, and soap she shall have, if it takes a week to make it, and I guess it will by the appearance of things. Somehow it doesn't come good. I am trying to boil it down now to see if that is what it wants."

"Is it the right time of the moon, Manum? My mother used to be governed by the moon in making soap."

"So did my mother. But I declare I never thought to consult the moon. May be that is what ails my soap. The moon may be on a racket, or vexed with the earth, or something of the sort. Who knows?"

"Manum, have you examined the bees yet this spring?"

"No, Leslie, I have not. I think I must very soon, if I ever get out of the soap business."

"Well, I examined my two colonies this morning, and I found they were short of honey, and I came over to tell you about it, thinking that, perhaps, some of yours might also be short without your being aware of it. Suppose we go out and look at a few colonies."

"Very well, Leslie. I will go and light the smoker. Well, here; I will open this one nearest the honey-house. This one had 27 lbs. last fall, and, just look! they haven't more than one pound of honey. Why! I am surprised."

"That is about as I expected you would find them, since looking over mine."

"And this next colony had 30 lbs., and they are nearly in a starving condition. Did you ever see the beat of this? And this next one also had 30 lbs., and they are dead. Starved? I declare, Leslie, I am afraid my out-apiaries are in bad condition. I must look after them at once. I had no thoughts that any of my bees would starve this spring, as I fed liberally last fall. But the mild winter we have had gave the bees opportunity to get to the food at almost any time; and, the colonies being very strong in the fall, they have consumed more feed than usual."

"What are you going to do in this case, Manum?"

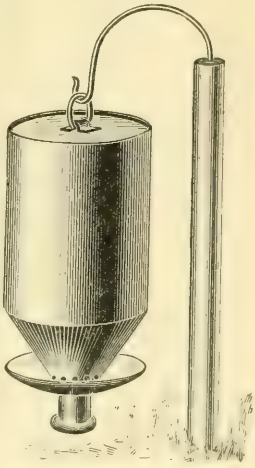
"Well, I have either got to sink or swim; that is, I must either feed the bees at once or let them die. But I have got the bees, and have wintered them through so far; and although I do not expect a paying crop of honey this year, it won't do to let them starve now; though if they are all in this condition it will cost me $200 or more for sugar to carry them through until raspberries bloom, when they may by that time be self-supporting."

"You propose feeding them sugar, do you, Manum?"

"Well, I have a few combs of honey at each apiary, as well as some partly filled sections, and shall use them as far as they go."

"How will you manage to feed them from the sections? Will you give them a whole clampful, or lay the sections on top of the honey-board?"

"No, I will do neither. I don't like to place the clamps of sections on for the bees to clean out as they are placed during the working season, because the bees are very liable to soil the combs too much, which would ruin them for further use. Nor do I approve of piling sections on the honey-board and then making an opening for the bees to come up to them, because in that case the opening thus made permits the escape of much heat from below. In fact, it causes a direct draft through the hive, from the entrance up through. At this season such drafts are very injurious, as the colonies need all the heat they can generate; and for this same reason I do not open my hives any oftener than I can help, in early spring. I shall, therefore, give them these partly filled sections inside the brood-chamber, and I will get some now and put them in this hive. There, I take out two of these outside empty combs and fill in with sections, and with this old steel-wire hair-brush I break the cappings before putting the sections down in place; and by to-morrow they will be empty, and should be removed before they become soiled, and more may be put in if required. When feeding sugar syrup I use the new feeder, which prevents the escape of any heat from below. I think, however, that I shall try a new device for feeding outside of the hives. There are some bee-keepers who prefer feeding in the open air for stimulative feeding; and as I have a machine that I think will answer the purpose, I propose trying it. Here it is, a tin can holding about one gallon. These cans are my chicken water-pots, and are the nicest arrangement I ever saw. for that purpose. As you see, by hanging them up on these stakes, just so they will clear the ground, the chickens or old fowls can't get into them to dirty the water, and there is always water in the dish where they can step up to it and drink. And now I propose to try them for bee-feeders, simply for spring feeding. You see, I can hang them up anywhere in the apiary, or as far from it as I please; and to fill them, simply invert the feeder, unscrew the cap, pour in the feed, screw back the cap, and hang it up; and as fast as the bees take the feed, the cup will fill up."


CHICKEN WATER-FEEDER AND BEE FEEDER.

"Are these water-pots or feeders something of your invention, Manum?"

"No, Leslie. Henry Isham is the inventor." He made them for his White Wonder chickens, and I dare say he never thought to use them for bee-feeders; hence I can claim only the idea of using them for feeders."

"Manum, have you got any wood screws longer than those ordinarily used? I want a few for a special use."

"No, Leslie; but I shall soon have. I have had very many calls for longer screws of late, and I have decided to keep them in stock. They will be $\frac{3}{16}$ longer than the common ones. The price will be the same for both lengths; and as I first introduced wood screws for use in the apiary, everybody has a right to use them, as there is no patent on them. I must now look after my soap. There, wife is fussing with it. She thinks I don't know how to make soap; but I will show her I do before I get through with it."

"Don't you believe this lye is too strong?" asks Mrs. M.

"Why! bless you, no. You can't get lye too strong to make soap. All it wants is boiling."

"Well, but you have been boiling it all day. I think there is something wrong. It either wants water or more lye," says Mrs. M.

"I will have it all right, I assure you. I know all about soap-making.

"There, now, she has gone, Leslie. Let us see what is the matter with this soap."

"Well, Manum, I think you want more grease, for one thing; and, as your wife said, the lye is too strong, for, as you see, I have added one spoonful of water to two of soap, and you see it is quite thick; and now by adding a little grease it is fine soap."

"Yes, that is *just* what I *thought* it needed all the time. You see, I know all about making soap; and all I have to do now is to add about 8 lbs. of grease and ⅛ water, and it will be nice soap, just as I expected. But, Leslie, don't tell my wife that you suggested any of these additions, for she would surely accuse me of being deficient in the art of soap-making."

Bristol, Vt.

[That water-tank for chickens is capital. We have had similar devices to be set on the ground, but somehow the chickens would scratch dirt into them, or tip them over. But they can't cut up any such caper when the tank is hung from a stake. As an open-air feeder for bees, no doubt it would do nicely also.—ED.]

MARKETING CALIFORNIA HONEY.

A BEE-KEEPERS' EXCHANGE PROPOSED.

By Rambler.

"The honey market in Southern California," as treated by Prof. Cook, on page 274 of GLEANINGS, is a topic of deepest interest to the producers of this State; but it has a broader significance, for the price of honey in California touches the pockets of every producer in the far East.

In a recent letter, a New York friend writes, "I wish you would keep your four-cent honey in California." I have no doubt that our producers would be pleased to accommodate our friend by sending east only six-cent honey; but the marketing of our product has fallen into the hands of dealers, and it is for their interest to bear the product to the lowest possible figure. We are thus running along in a rut from which it will require much lifting power to rescue us.

The producers of citrus fruits found themselves in a similar rut with the dealers, and their products were borne down to ruinously low prices; hence the organization of the exchange. This organization has had to deal with some obstacles. Wholesale shippers, local buyers, and the whole tribe of middlemen, were opposed to the exchange, and have tried to break its influence—first, by causing a break in the ranks of those who had promised to ship through the exchange; and, next, by discrediting the organization abroad. With but few exceptions the patrons held to their organization; and eastern dealers, finding the exchange could fill their orders with a superior quality of fruit, carloads of it began to move, and at better prices than could be procured through the local speculators; and at present the exchange seems to be working upon a substantial and permanent basis. It is no wonder, then, that the honey-producer looks toward the exchange for help and consolation to his depleted pocketbook.

In dealing with the honey question, the methods of our fruit-men must be followed; and it would be of vital importance for the patrons to stand by the organization; and it must be borne in mind that a great many bee-keepers virtually barter away their rights before the honey is produced. The bee-keeper is in straitened circumstances, and, going to the local dealer, who, foreseeing this state of things, provides a goodly pile of honey-cans. The bee-keeper obtains the cans, giving the dealer a lien upon his product. In order to hold this class of bee-keepers the exchange should take the place of the local dealer, and have on hand a stock of cans. In fact, the exchange could order all the cans needed in certain districts. This fact would point to an organization independent of the fruit-men. An organization of this kind, having the control of the shipping, could place the product in the various markets at the best advantage, and at times to suit the market. Such an organization should be prepared to grade honey, and to repack if advisable, to a certain extent, in smaller packages suitable for the consumer.

In looking at the marketing of honey, still further we find another problem: When the flowers yield abundantly, and our tanks and cans are filled, we work forward and establish a good trade. We are caught, however, in the midst of our high hopes, with a season of total failure, or the next thing to it. We have no honey to ship, our trade lapses, and every lapse puts us to the bottom of the hill again. The only remedy in such a case would be the organization of many exchanges in the East; then when one can not fill its accustomed markets another could step in and help, so there may be no serious lapse in the markets. We should certainly be pleased to hold all of our four-cent honey here; and in order to send only our six-cent honey we must have the co-operation of our Eastern brethren. That much good may arise from the discussion of this vital subject is the wish of the RAMBLER.

[This is a most practical question, and we should be glad to have it thoroughly discussed. Yes, yes, let's have co-operation. If an exchange has proven to be a good thing for fruitmen, why not for bee-men?—ED.]

THE COWAN EXTRACTOR.

ITS HISTORY AND NAME.

By J. F. McIntyre.

On page 368, GLEANINGS, 1890, I called attention to the Cowan principle of making a two-comb extractor, and recommended the baskets in preference to the non-reversible Novice, but not in preference to a four-comb reversible machine. On page 841, GLEANINGS, 1889, I say, "After trying all sizes up to eight combs, I would take a four-comb in preference to any other size, at the same price." I am still of the same opinion for a hand machine; but for power I would have at least eight comb-baskets. With regard to your four-comb Cowan, there is not a single idea about it that is Cowan's. I can not say who first originated the idea of putting a sprocket-wheel on the axle of each basket and making all turn at once; but I think I made the first extractor that way myself, as a modification of Mr. Squire's extractor (see page 841, 1889), in Jan., 1887.

When A. I. Root was in my honey-house on the 3d of Dec., 1888, I showed him this extractor. He asked why it wasn't a good idea. I said it was, and that I preferred it to the extractor that reversed by the crank. This four-comb machine is the one that I recommend in preference to the two-comb Cowan; and whether the idea came from my honey-house, or originated with some one else, the proper one should have the credit, and not Cowan. I have heard quite a number of bee-keepers say that there was not a single idea of Cowan's about this extractor.

Fillmore, Cal., Apr. 23.

[The first Cowan extractor was made in 1875, by Thomas William Cowan, editor of the *British Bee Journal;* but nothing was done with this principle, in this country, we believe, until 1887 or '88 when we made a machine to try. But it was not until November, 1891, that we made them for the market.

After reading your article on page 841 for 1889 we saw that your idea of reversing by means of levers was practicable. Shortly afterward it occurred to us, as we were thinking over this extractor, that a sprocket-wheel and chain would be cheaper, and we accordingly made a rough draft of the machine. Although A. I. R. saw your machine, he said nothing of it on his return home, nor at the time your article appeared; and "the boys," not knowing any thing about what you had done, treasured up the sprocket-wheel idea, hoping, in the near future, to make some experiments and put machines on the market. It was not till January, 1892, that we made one to try, and it was some time later before any were sold.

By carefully re-reading your article we see that you outlined a modification of the principle, at the top of the second column on page 841, 1889, as it was used by Mr. Squire. As many of our readers may not be able to refer to this paragraph we reproduce it here.

> Mr. Squire, of Santa Barbara, Cal., came out with a very simple arrangement for reversing the comb-baskets all at once. He made some hard-wood wheels, about three inches in diameter, with two grooves around the edge, and fastened them securely on the axles of the comb-baskets; then put a screw in the edge of each wheel between the grooves, directly under the basket; then a wire was passed from one wheel to another, going around each wheel once. When it came to the screw it was wound around that to keep it from slipping. This acted like a belt; and when one basket was turned, all turned.

The wires Mr. Squire used, and the wooden wheels, would hardly be practicable or durable. Well, after selling the Cowan two-frame extractors for a year or so, there came a demand for the four and six frame. Realizing that it would be impracticable to move individually each pocket of the four and six frame machines, the sprocket-wheel-and-chain idea seemed the most feasible plan for moving all the pockets by simply turning one.

It is true, as you say, that this principle is not Cowan's; but it is adapted to Cowan comb-pockets, Cowan gearing, Cowan extractor-cans, as they appear in the two-frame machines we had been previously selling. The two-frame had previously been called the "Cowan Rapid;" but as a new principle was introduced in the four and six frame it was called "Cowan Improved Extractor," and this is the name that has been stenciled on every machine sold. The name "Cowan" was retained because many of the features of the two machines were used, and the word "improved" would suggest the change in the method of reversing; but unless somebody can get up and prove prior date, you are probably the first one to use the sprocket-wheel and chain. So far as "the boys" are concerned, they were original in its use—that is, they had no knowledge of any one using it before.—ED.]

SPREADING BROOD.

A RULE THAT WILL ALWAYS WORK; THE VALUE OF YOUNG QUEENS.

By Rambler.

Your advice to Mr. Chapin, on page 282, in relation to spreading brood, leads me to review the matter as I see it, and give the experience I have gained both here and in the East.

In the first place, I think the bee-keeper can so manage his bees, especially in this climate, that there may be no necessity for the spreading of brood; and the bee-keeper should try to advance to that point in his management, so as to dispense with this extra manipulation. The conditions necessary for the non-spreading plan is, to have young and prolific queens in every hive; not a queen over two years old, and not a queen that stops short of keeping ten frames filled with brood. Another condition, highly conducive to the same end, is to leave the colony with an abundance of honey in the fall. We sometimes have hives nearly if not quite honey-bound; and while I would not advise quite such an overabundance of honey, I should prefer to err on that side rather than to have a condition of short rations; for what is there more encouraging for early brood-rearing than several frames of sealed honey in the hive?

A condition of a good supply of pollen is also necessary; and I condemn the practice of cutting out pollen-laden combs in any locality, as some do, for that pollen is just what the bees want for early brood-rearing. With the foregoing conditions in this climate, I think there would be but little necessity for the spreading of brood; for by the time honey is secreted in quantities enough to gather, there would be bees enough reared to secure it. If, however, the conditions above are not complied with, or in cold climates the colony becomes reduced in numbers, the spreading of brood will greatly hasten the accumulation of bees.

You say, in reply to Mr. C., that "it is impossible to give a rule that will hold good in all cases." I think my plan will cover nearly if not quite all the cases that are ordinarily met.

Mr. C. says he wants to spread his brood Apr. 1st, or as soon as they have two frames of brood. If said two frames of brood are only larvæ, and just sealed, the spreading of them, in a majority of cases, would result disastrously, even here in California, not saying any thing about colder Michigan. The spreading of three frames, and inserting two empty ones, would also be hastening things too fast, and also result disastrously.

The surest way is, to make haste slowly. If the brood at any time does not fill out to one end of the frames, the reversal of one or two will do away with that evil. When the frames are filled from end to end, and have quite an amount of *hatching brood*, it is then safe to commence to insert empty combs between the brood. It is quite safe to wait until there are two frames of hatching brood and a frame of eggs and larvæ. If Mr. C. spreads his brood as he states it, there are several chances that he will ruin several colonies. It would certainly be an exceptional season, and the colonies extra strong in bees, to allow it. The learner will heed the lesson all the better, though, by losing a few colonies. That is the way the go-slow plan was learned by the RAMBLER.

A CARD FROM MR. COWAN.

I see in GLEANINGS, page 195, you allude to my letter. I think I can explain to you the apparent discrepancy in the volumes, and why the names I mention do not appear. There is no doubt in my mind that it is the same work, and that yours is a later edition. The work was brought about in this way: Sir W. Jardine, who was a naturalist, decided to compile a series of volumes dealing with different animals. With this object in view he engaged the best men in the different branches. The subject of Entomology was taken up by a Mr. Duncan. The special subject of bees, of which Mr. Duncan knew very little, was put into the hands of the Rev. Mr. Dunbar, who was a practical bee-keeper, and wrote the book anonymously. He is referred to as the clergyman, in the preface of the first edition, without his name being mentioned. This edition was issued in 1840, and formed Vol. VI. of the "Naturalist's Library." It was printed in Edinburgh, and published by W. H. Lizars, and in London by S. Highly and by W. Curry, Jr. In 1850 the Library was rearranged, and the London publishers changed to Henry G. Bohn, York Street, Covent Garden, the Edinburgh publishers being the same as before—namely, Lizars. In this edition the advertisement of the publishers is omitted, and that is why even Mr. Duncan's name is not found in your book. The re-arranging of the Library necessitated a change of volume, and this volume on bees became Vol. VII., Insects, reprinted in 1852 and in 1859. It also became Vol. XXXIV. of the whole series. Since that time the book has been reprinted, without date or number of the volume.

I hope this explanation will clear up any difficulty there may have been. I have, as I stated, several editions of this work, and, having known the Jardine family, I happen to know more about the book than most people.

London, March 28. THOS. WM. COWAN.

CALIFORNIA ECHOES

By Rambler.

Mr. Pryal, in *A. B. J.*, upon the California poppy, and my Echo on the same subject, show that there is nothing too small for great minds to consider.

Sheep are quite destructive to honey-pasturage; but goats will utterly ruin it. They eat down the sages; and what they can not eat, they trample down. Goats and the bee-business can not work harmoniously together.

Dr. Mason, when you have another World's Fair on your hands, and a band of those stalwart Canucks after you, just send to California for our improved Canadians. We've got 'em here that will make those old Dominion fellows' heads swim with their stories.

It has always been a mystery to me why goats were used in Bible lore to represent evil, and placed over perdition. The mystery is now solved. I passed a goat-corral on a rainy day, where several hundred were huddled together; and, to make a long story short, they stink.

There is a prospect for our State Association to hold a special meeting in San Francisco during the midwinter fair. It will probably be held in the latter part of June. Bee-keepers intending to visit the fair will govern themselves accordingly. We shall have more to say about it later.

There are 49,000,000 acres devoted to raising 65,000,000 tons of hay, worth $507,000,000. Dr. Miller, you deal in so much straw perhaps you know something about this hay business. Why don't you hold hay conventions? Are you afraid they will see hay seed in your har—hay, hay, doctor?

We remarked a while ago that one honey-producer here produced more honey than the whole State of Vermont. From the scarcity of rain up to the present writing, and the long visages borne by bee-keepers, I shouldn't be surprised if one Vermont bee-keeper would produce more than the whole State of California.

Those Ontario Canadians and others boast that there's no wind in Ontario. Oh, no! nevertheless, a house in the suburbs of the town is propped on all four corners. Come to think of it, that house was in Claremont, Prof. Cook's new home. Well, Claremont and Ontario are so near each other that we will put them all together.

Willie Atchley, somewhere in a back number, says that bees do not remove eggs and place them in queen-cells. Last season I noticed in a hive a partly built queen-cell. There was one egg in the cell, which was in the extracting-super, above a queen-excluding honey-board. Not another egg in the super, and the queen was below. Query: How did the egg get there unless carried from below by the bees?

HEDDON FURTHER REPLIES.

On page 335 we gave a brief synopsis of an article sent in by Mr. Heddon; but the latter feels that he should be allowed to speak for himself. Wishing at all times to do him full justice, we have decided to publish the article in question. To this we make no reply because we do not desire to prolong the matter any longer than is necessary.

Dear Mr. Root:—As it seems to me your footnotes are unjust in their inferences, and neglect to touch the principal arguments of my article, I desire to refer to the matter again.

Your first sentence regarding "those who have purchased honey of me before" is not fair, because I did not refer to persons who purchased honey of me "before," but to those who purchased at the same time, and both before and after, and out of the same lot of that shipped to Mr. Willard and others. You publish an entire copy of a postal card from one G. F. Ayers. I do not remember Mr. Ayers; and while it would not be strange that I might forget a customer, I have been back over my alphabetically filed orders for 1891, '92, '93, and '94, and I can not find the name. But I am glad you published Mr. Ayers' card, because it places you under honorable obligation to publish reports from others of my customers. You asked how about honey that I shipped before 1893 and '94. I have never shipped *any* adulterated honey to *any* one; but your asking this question is *prima-facia* evidence that you are not depending on chemical analysis, but hearsay, for your suspicions. I have been apprised of the source of your fancied evidence. You asked me to state "what in the world bee-keepers are to do." The answer seems to be plain—do the best we can. This brings us to the real point at issue—the point I first began to discuss at our State convention, and which discussion you assumed to be a defense of adulteration. If you do not agree with me, that making arrests of members of any class of honey dealers, whether it be city dealers or producers, will not stop adulteration, and thus do no good, but through newspapers destroy the reputation of our product in the minds of consumers, why don't you arrest some one? Two arrests have been made in Ohio, and in both cases, I am sure, the arrested parties were innocent. I might have concluded that my honey had been removed, and other, which was adulterated, placed in the cans, were it not for the fact that I had been and am now quite certain that the chemical analysis of the day is a combination of honest error and conscious inability, as proven in the Jankovsky case. Certainly I was well aware that the Fish honey was pronounced slightly adulterated with sugar and not largely mixed with glucose. I thought of all this. But you do not seem to see the point. The point is, that, *notwithstanding* the fact that "it was sugar adulteration," and "very slightly," and "such adulteration very difficult to determine," the chemists and the court officials hesitated not, but have secured their fees, and Mr. Jankovsky is some $75.00 out of pocket, and henceforth can never stand up in court and say he never was arrested and convicted. Not only his reputation but also his business has been damaged. In your endeavor to lift up Mr. Fish with your lever, GLEANINGS, using me for the fulcrum, it seems to me you deal a terrible blow to courts and chemists. Although the chemists were not able to tell, they either didn't know they were not competent authority, or else they had no respect for the rights of the citizen. My former reference was nothing more nor less than to show that the present science of chemistry is now convicting and fining innocent people, and no amount of explation as to how their errors came about changes the force of my citation.

I next come to your statement as to what I would have seen had I "been to the Washington and Chicago bee-keepers' conventions, when Prof. Wiley was warmly welcomed by bee-keepers." I wish I had been there. I should been able to say, "I am glad to meet you, Prof. Wiley I beg of you to remember that you are now shaking a consistent hand; I never called you a 'liar.' Prof. W., let us sympathize with each other; we have both been attacked by bee-journals. You are back in the 'band-wagon,' please instruct me as to how you got there!"

I did not call Prof. Wiley a "liar," but I said he either was one or else he was at one time worse abused by bee-journals than I am being now.

I now come to the point of your having honey in cans, and the cans in boxes, and the cover of the box having tacked upon it one of my express tags. I do not doubt it, because I put them on that way—an easy way to imitate. The tag is no doubt mine; but if it is nailed upon my cover, that cover resting on my box, that box containing my can, the honey in that can is not my honey provided it is not pure and of first quality of its grade. (By this word "my," I mean having once been mine.) I now mail you a sample of my pure honey, the same that I shipped to all my customers, and I desire that you compare it with the honey in those cans, and then return to me a sample of that in the cans you have. You can return in the same mailing package, and I enclose stamps for postage. Also please state in Gleanings how they compare.

In your next paragraph you bring into public print what you claim I wrote in a private letter to some one. I do not remember to whom I wrote such words. I may have done so, however. We will admit that I wrote these words in a private letter to some person. Of course, we all know that Prof. Cook is far from being a "fool," or "silly," and that it requires nothing short of genius bordering upon the "consomate" to make so much of a seeming case against me as you have done, with nothing real for a groundwork. If I wrote those words, I am sorry for the mistake, and must give as my only excuse that I then had what I now have in my mind, the thought that it is both silly and foolish to hope for general benefit to bee culture to grow out of the persecution of honey-producers. On the other hand, if the object is *not* to benefit bee-keepers, but to temporarily injure a competitor in business, "foolishness" immediately changes to conspiracy. However, speaking of your not sending me proof, I see no logic, nothing wise and just, in retaliating upon the "weak." "foolish," and "criminal," by witholding *justice* from them. I very much admire the following quotation from a prayer: "Lord, bless the wicked; thou hast blessed the good by making them good." I have not said that the chemists of our land are all ignorant and vicious, although we all know enough of mankind to know that chemistry, perched upon a good salary, and well obscured from the masses, is not necessarily always perfectly honest nor all-wise. We know one man has been fined heavily, and immeasurably injured, through either the ignorance or vice of chemists.

You say you have enough of my honey that speaks for itself, to go around. I say you haven't enough of my honey to support one bee 15 seconds, that, sent out as samples, would not do honor to me as a producer and to our business at large. I mailed samples to many of my customers, and I do not remember of a sample sent that did not bring an order. If there are any of my customers who will say the goods were not like sample, I want to hear from them through Gleanings; but if such statements should be made, I want to know, as I do in the case of Mr. Ayers, why nothing was said to *me;* and I further desire to have about forty of my other customers state what they think of my honey, in Gleanings.

By re-perusing the Fish-honey advertisement, I find it reads as follows:

> We offer you honey, put up in original packages, as received from the apiary, at from 4¾ to 6 cents per lb., depending on quality and style of packages. Can sell you any quantity you wish, from 60 lbs. to a carload. Samples mailed if so requested. Will thank you for a response.
>
> Resp'y yours, S. T. Fish & Co.

Above the above, on the card, is the following:

> We are agents for the Bee-keepers' Association, and any honey we sell we guarantee strictly pure and unadulterated.

The wording of this card exhibits confusion, and that the firm is already on the defensive, does it not? Mr. Fish is a scholarly man of business wisdom; and the way this card flutters, we would know that not only the firm but their customers had been hit. "From 4¾ to 6 cents," even in "60-lb. lots." "Cheap." Is this honey (two cents below the lowest of my prices for the same grades) adulterated because it is cheap, or cheap because the word "adulterated" has been published too many times?

Your references to the test to which chemistry has been put are not at all conclusive to me. The tests should be made by persons on one side who will, for the time being, lay aside all desires as to results. I am well satisfied that there are honeys, pure from the blossoms, that, under chemical test, will answer the chemists' requirements for glucose, and I have no doubt it can be proven by honest experiment. I was a witness to one glucose experiment at Lansing —one which has been cited as a case proving the ease of detection. A portion of reddish honey was divided into three parts—a small part, medium part, and a larger part. White confectioners' glucose was mixed with each, and the shades of color afforded an unerring guess; for, when brought in, we were told that one lot of honey was mixed in different quantities, with equal amounts of glucose. I wonder if all the other tests were as severe as this one. And this test has been cited in your paper to show the ease of detecting glucose by taste. The glucose we have tasted in our confectioners' shop here has no taste at all that the aromatic flavors of honey will not annihilate at once. I tasted of the Lansing experiments, and could unerringly tell, by appearance and taste both, which had the most glucose (the less of flavor being most diluted with the comparatively tasteless.) I know that I have tasted pure honeys that I could not tell from any one of these glucosed samples. If others could, I could not; but I could unravel that experiment with greatest ease. When the chemist is *really* tested, we shall then know whether or not his reports are competent to fine and send people to jail, or, what is worse, to public disgrace. I am far from having a desire that present chemistry can not detect glucose in honey with sufficient certainty to warrant conviction; but, fully believing it to be true, I have a stronger desire that no more honey-producers should be persecuted and injured while all bee-keepers are also materially damaged.

Your statement, that my utterances have defended the practice, are wholly unfair. That is another disputed question, I maintaining that they do not defend the practice, and asserting positively that such was far from my intentions. While I said that bee-keepers' unions could not stop one little honey-producer, the idea I wished to carry was that they can not stop the practice with anybody. What harm can it do for me to make this statement to bee-keepers when the city adulterators (all the adulterators there are) know it full well beforehand and after the Union has previously, for a whole year, admitted it by its non-action. When it was first proposed to put this load upon the Union (an offspring of my own, and to which I am greatly attached), I objected because I thought it would weaken and destroy the already proven efficiency of the Union in the line of work for which it was originated, and I think so still. What better evidence of my original statement, made at the time I opposed the change in the constitution, need I adduce, than the fact that more than a year has passed, and the Union board has proven by its actions that it dare not even test the truthfulness of my assertion. Had I been Mr. Jankovsky, and had I been arrested and fined by any pure-food commission, bee-keepers' union, or any one else, it would cost such commission or union or person a very large sum before they were through with me. The logical genius of law is a very different thing from the prejudices of those who persist in the adulteration cry. We do not differ, and never have differed, upon the right and justice of adulteration; you have only made it *appear* so; we differ greatly as to policy of action, and we do not come any nearer to the real point at issue, because of the malicious prejudice growing out of your misunderstanding or misrepresenting the true state of affairs. This is the way it seems to me. Suppose we discuss the real point at issue, as to what is best to do and not to do, leaving personal allusions out of the case for a while, or, at least, placing them on another page.

Finally, since you have begun publishing contributed evil words concerning me, are you willing to publish several letters I have, stating, with gloves off, what the writers think of you? If you will open a column for innuendoes against you and me, you may come to the conclusion that both may be loved for the enemies we have made. JAMES HEDDON.

Dowagiac, Mich., Apr. 2.

[The following is a copy of an affidavit sent us at the same time.—ED.]

I Charles Heddon, son of James Heddon, do hereby swear that I took from the hives in my father's two bee-yards, and in his honey-house did extract all of the surplus honey produced in said yards, during the years 1892 and 1893; and, further, that I put all of the said honey into sixty-pound boxed tin cans, and superintended the shipping of nearly all of said honey. That I personally took from the hives, extracted, placed in cans, and shipped all of the 18 cans of honey sent to Mr. George G. Willard, of Cleveland, Ohio, during 1893, and to my certain knowledge all of said honey was free from any adulteration. CHARLES HEDDON.

Subscribed and sworn to before me this 4th day of April, A. D. 1894. ABNER M. MOON,
Justice of the Peace in and for Cass County.

[In addition to this we expect to allow Mr. Heddon reasonable space for reply to the two editorials—one on page 335 and the other on page 382, in next issue. If we attach no footnote this will give Mr. Heddon the "last say," and certainly all that one could ask for. We desire that Mr. Heddon shall have a full chance to vindicate himself, and toward this end we publish a letter received that will explain itself.—ED.]

One year ago this last winter my stock of extracted honey gave out. So I sent an order to Heddon for two cans of his amber honey. I want to say that I never had any honey that gave better satisfaction than this. My customers were well pleased with it, and they had been using clover and basswood honey from my own bees. EZRA G. SMITH.

Manchester, N. Y., May 2.

[Here is another which we also take pleasure in inserting here, even though it speaks more highly of Mr. Heddon's honey than of our own.—ED.]

Friend Root:—I desire to say to your readers that I have purchased honey from Jas. Heddon, at different times during the past eight years, and I have never produced nor seen a superior article of extracted honey, nor sold any that gave better satisfaction to my customers. Perhaps you may remember that I have purchased from you extracted honey of the same grade, and at the same price, and truth compels me to say that, according to my taste, and that of my customers as well, Mr. Heddon's is very much better. I am perfectly satisfied that the honey from each of you was pure; but I am also certain that the differentiation Mr. Heddon speaks of in his article is not only true but greatly in favor of his locality. L. B. BELL.

Brecksville, O.

HONEY-CROP IN CALIFORNIA A FAILURE.

By W. A. Pryal.

The honey crop in this State—that is, in the southern portion—is doomed to nothingness this year. There is evidently going to be an entire failure. I have advices from there that the bees will soon commence to starve, unless they are fed. This will be rather unprofitable, since the bee-keepers got such a low price for their honey last year. Up this way there is some chance of getting an average crop; besides, it will be of better quality than it usually is. I think the time is not far distant when the upper portion of this State will be the *bee section*. There is never a failure of the rainfall in many of the northern counties. If you ever read the admirable articles John Muir, who lives in the adjoining county, had in the *Century* some 12 years ago, you will remember that he likened the vast extent of honey-flora in some of the northern counties, especially, I believe, in Shasta, to a grand bee-garden. Harbison, some thirty odd years ago, predicted that the mountain regions of this State would be the great honey-yielding sections. At that time the honey or sage districts of the south had not been discovered. While the largest yields may be obtained in the lower counties, still, one year with another, the northern counties will, I think, outdo those at the other end of the State. I saw some very fine honey from Shasta County at the midwinter fair. Twenty or so years ago, the honey from the Sacramento Valley was the leading honey of the State. I notice that it is again coming to the front. There is a sure crop along the river every year, as the bees gather the nectar from the countless acres of overflowed land along the rivers and sloughs. Most of this honey is rather dark; but then, it is of good flavor, and in a dry year it brings more than the beautiful white sage honey does in a year of plenty, like last year, for instance.

North Temescal, Cal.

TRADE NOTES
BY EARNEST R. ROOT.

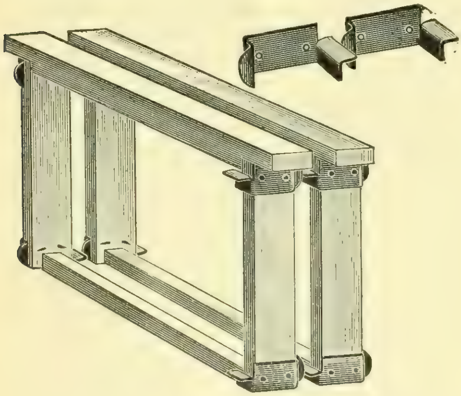
THE STEPHENS FRAME-SPACER.

SOMETHING THAT CAN BE ATTACHED TO OLD-STYLE FRAMES ALREADY IN USE.

By George W. Stephens.

I have been requested by the editor of GLEANINGS to write an article for publication to accompany his illustrations descriptive of my new and improved spacer for hanging frames. The illustrations show the device in detail, and I hardly think a written description would add much information, because I imagine any one will see at a glance just what they are and what they are for.

Some years ago, when I began to keep bees, I used loose hanging frames, and I found it almost impossible to get straight combs, from the fact that, no matter how particular I was in spacing the top-bars with my fingers, by guess, the frames would not hang straight, and the bottom-bars would be out of plumb, some being close together and others far apart. The consequence was, the combs would be correspondingly out of shape—the cells on one side being built too deep and on the other too shallow. I tried several methods to remedy this, but none proved satisfactory, until one day, about two years ago, I had the fortune, or misfortune, to be forcibly struck with a sudden idea. That settled it, and my spacer as illustrated here is the result of that idea: and it has not been changed in any particular from the original idea that I was "struck" with. I immediately made some of them, and showed them to every bee-keeper whom I met, and, without exception, they pronounced the device a good thing. Thus encouraged I concluded to have it patented, and my letters patent bear date Feb. 14, 1893.



I presume there are thousands of bee-keepers who are still struggling with loose hanging frames, who would be glad to change to a fixed frame, but are deterred from doing so on account of the expense. It will readily be seen that these spacers can be easily affixed to the frames they now have in use, at a nominal expense. I am not prepared to say how cheaply they can be made, as I have not invested in any machinery for their manufacture, and do not know what they would cost; but it is reasonable to suppose, from the cheapness of the material of which they are constructed, the number in a pound (80 to 85), and that they can be stamped out very cheaply with suitable dies, that they can be made and sold at a comparatively low price. I have made 10 or 12 pounds of them by a slow process, partly by hand; and, although they are not as perfect in shape as machine-made ones would be, they are nearly so.

The spacer is constructed of No. 20 ⅝ band steel, which I find is strong enough for all practical purposes. The pieces are cut of sufficient length to allow one end to be bent inward about ¼ inch, and then outward $\frac{3}{16}$, the projecting vertical edge being cut circular. This flange being circular there are no corners to catch, and the frame slips into its place in a surprisingly easy manner, and without jar. The other end is bent inward ½ inch, and then cut and turned downward to the middle where it is cut off, leaving a horizontal flange ½ inch wide, and projecting $\frac{3}{16}$ of an inch. These are nailed to the end-bars at the four corners of the frame, the two at one end with the circular flanges pointing one way, and the two at the other end pointing the other way, like two persons going around the same way in a circle and stopping at opposite sides; they would then face in opposite directions. The end-bars are to be just 1 inch wide; and as the projections on either side of the end-bars are $\frac{3}{16}$ of an inch, the spacing will be 1⅜ from center to center; but they can be made to space a greater or lesser distance by having different-sized dies.

As will be seen, when these spacers are affixed to the frames in the hive, the projecting flanges (one being vertical and the other horizontal) cross each other, thus affording the smallest possible contact between the frames, and preventing the bees from gluing the frames together; in fact, it will be impossible for them to do so to any appreciable extent. The horizontal flange is made ½ inch wide. This allows a play of the frame endwise nearly ¼ of an inch without the flanges slipping by each other and becoming interlocked. However, I would recommend that the bottom-bars be made so as to project at the ends ¼ of an inch, the ends being reduced to a point, or a round-headed nail be driven in, or, what I consider better still, a staple-tack driven into the ends of the bottom-bar, projecting ¼ of an inch, with the head vertically disposed. This makes an excellent guide to the frames, and facilitates handling them; in fact, if the bee-master should be so unfortunate as to get stung in the face, and his eyes become closed, he could still manipulate the frames without any trouble, and get each frame in its proper place. Any frame in the hive can be removed and replaced without disturbing any of the others, if the combs are straight, and it is very easy to have straight combs with proper spacings at fixed distances. Also, any frame may be turned end for end, or it may be taken out and shifted to any other part of the hive, and the gap closed up by sliding the frames along the rabbet, and it will still fit. Frames may be changed from one hive to another, or from the extracting-super to the brood-chamber, and they will always fit just where they are wanted.

For bearings at the sides of the hive, I use double-pointed tacks or staples, preferably ½ or ¾ wide, driven in and allowed to project ⅛ of an inch. These are so disposed at the corners of the hive horizontally and vertically that they must meet the corresponding flanges of the spacers crosswise, the same as the flanges meet each other.

Denison, Ia., March 21.

[When friend S. sent us samples of his frame-spacers we were convinced that they had merit enough to warrant a description in this department. The particular feature of them is, that they can be attached to old frames already in use. Some of the good things Mr. Stephens says of his spacers are also applicable to the Hoffman. Now, you may ask, "Which one do you prefer?" The Hoffman, because metal spacers are and have been more or less unpopular, and we like to have the frames stick a little so as to be always ready for moving. But here is what friend Z. T. Hawk thinks of them.—ED.]

Ed. Gleanings:—Undoubtedly fixed frames have come to stay. Of these, three classes are in common use—open all round, wholly closed at the end, as the Quinby, and partly closed at the end, as the Hoffman. To one just entering the business of bee-keeping, I doubt very much whether it makes any great difference which one of these styles he adopts; but the apiarist who has a large number of the old-fashioned suspended frames in use has really little choice in the matter if he would avail himself of the advantages of fixed frames. Unless he replace his old frames outright with new ones, at great sacrifice of time, labor, and money, he must adopt some automatic spacer that can be easily attached to the frames he already has in use. There are several of these spacers, of more or less merit; but my old friend Mr. G. W. Stephens, of Denison, Ia., seems to have hit upon a little device of this kind that leaves nothing further to be desired. It has the triple merits of cheapness, simplicity, and effectiveness. It can be attached to an ordinary suspended frame in a few moments, without disturbing or mutilating the comb; and if the bee-keeper wants a suspended frame with all the "swing" taken out of it he can nail one of these little pieces of metal to each corner of the frame, and haul his bees over the roughest roads without additional fastening. I have not the remotest financial interest in the device, and only desire to call the attention of brother bee-keepers to what I consider a meritorious invention. Z. T. HAWK.

Vail, Ia., March 19.

[We might suggest that it would be cheaper and perhaps just as good to have the spacers only at the top. Just now it strikes us we should prefer them so, to having them at the bottom also. Spacers at the bottom of the frames always bother more or less in removing and replacing.—ED.]

SYRUP FROM A PERCOLATOR A SUCCESS.

I have tried Dr. J. T. Beall's plan of making simple syrup, as described on page 226. I find it works very satisfactorily, and gives a syrup that suits the palate of man as well as bee. Try it on some nice rolls, and see.

St. Louis, Mo. P. R. WAGNER.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

QUEENS CRAMPING.

Question.—Do you ever have queens go into a spasm, or cramp, when catching them to clip their wings, or for any other purpose? I wish to clip the wings of my queens this year, but a friend tells me that they often have cramps, and die, while this is being done. Knowing that you clip the wings of your queens, I write for information.

Answer.—Several years ago this matter of the cramping of queens while being clipped was brought up; and it was claimed at that time, as your friend claims, that when queens would so cramp they would die. At that time I did not believe that a queen ever had a cramp from being caught, or ever went into a spasm from such a cause. I have seen scores of queens in the condition which I supposed others called having a cramp, some lying that way from five seconds to two minutes, and always found such a state of affairs to come about in this way: When a queen is caught by both wings so that she can not get around to catch her feet on the fingers she will often curl up her abdomen, opening the vulva at the same time, and, while in this position, catch one of the front feet in the vulva, which at once closes, feeling the foreign substance there, thus holding the foot fast and doubling them up in a little round ball, like a caterpillar. Sometimes they will lie perfectly still like this for two minutes after the wings are clipped, on top of the frames, when all at once they will open the vulva, take out the foot, and run down between the combs as if nothing had happened. I have had them do this several times when putting them up for shipping, but not so often as in clipping; but in all these cases I never could see that the queen was injured in any way whatever.

However, a short time ago I had an experience different from the above, and the only thing of the kind I ever witnessed. I caught a queen very heavy with eggs, to clip her, catching her by all four wings. She doubled up, as above given, caught her middle leg on the right-hand side, as her back was toward me, in the vulva; and when I cut the wings she rolled down among the bees between the frames, lodging about one inch below the top-bars. I marked the place where she was, finished the rest of the manipulation of the other combs as I desired, when I blew a little smoke over the marked place, and, when the bees had run away, there was the queen all doubled up in a little round heap, apparently dead. I took out the combs again, opening very carefully this space between the combs, where the queen was, so she should not fall too rapidly to the bottom of the hive so as to injure her by the fall, when I picked her up off the bottom and examined her closely. This revealed that she not only had the middle leg in the vulva, but that both of the sharp claws of the front foot on the same side were caught under the fourth segment, or horny scale, of the abdomen. I had no difficulty in liberating the foot from the vulva, as the queen was now, so far as I could see, lifeless, not moving or stirring any part of the body, leaving legs, wings, etc., just where I placed them; but when I came to try to get those claws, or nails, of the foot, out of their place under the segment of the abdomen, it was a very difficult undertaking, for they were about as fast as in a vise. With great care I finally liberated them, straightened the queen out in the palm of my hand, and pronounced her dead. All who have lost a valuable queen can imagine about how I felt at that time, as this queen was one I had lotted on for the present season's use. I laid her down on a part of the hive, wondering what I should do about the queenless colony, when she opened her vulva and ejected several eggs in rapid succession. I now placed her where the bees could have access to her, and, after ridding herself of some twenty or thirty eggs, she put out her tongue to the bees, and was fed, still lying on her side. After being fed she got up, took some more food from the bees, walked feebly, at first, over on top of the frames, then across the tops of several of them, and finally down into the hive, coming out all right. She was apparently dead for at least fifteen minutes, and from three to five minutes in recovering after she showed signs of life. Was this a spasm or cramp? and have any others had a like experience? But it is not necessary to catch queens to clip them, although I generally do so. With a pair of A. I. Root's scissors, for this purpose, and the hand holding them kept very close to the back of the queen as she travels over the comb, waiting till she puts her head in a cell for the final movement, the wings can be clipped without the queen even knowing she has been touched. Keep the scissors open, and very close to her, or you will lose the opportunity while her head is in the cell in making ready. A little practice will make perfect.

REMOVING BEES FROM SHIPPING-CAGE.

Question.—Is it better to remove the accompanying bees from the shipping-cage before trying to introduce the queen, where the Benton cage is used?

Answer.—Dr. Miller like, I feel like saying, "I don't know" to this question. Years ago I should have said yes, and very many of our best bee-keepers say, "Never try to introduce the accompanying bees with the queen; for if you do, the life of the queen is endangered in the slaughter of these bees, which happens in nearly every instance." This is just as I used to feel; but after having gotten the queen, and apparently all the bees with her, introduced safely scores of times. I have about come to the conclusion that the old ideas along this line were faulty. However, the trouble of removing these bees is all there is against doing so, as the queen will be received by the colony equally well without them. It is far easier to place the cage, just as it comes from the mails, on top of the frames, than it is to open it, get the bees out, and the queen back in again.

INTRODUCING IN SWARMING SEASON.

Question.—Which is preferable at time of swarming—to introduce a queen to the swarm, after having removed the queen going with the swarm, or to introduce her to the parent colony, after having cut the queen-cells?

Answer.—I should say neither; for in the first case the bees will be almost sure not to be satisfied with the queen given them in place of their own, when a general going-back to the old hive will be the result; while if given to the parent colony without removing it to a new stand, so as to make them feel very poor through great loss of field-bees, they will be almost sure to kill the introduced queen and hold to the brood they have which is still convertible into queens. Bees having the swarming fever accept a queen far less readily than at any other time during the season, or under any other circumstances. At least, this has been my experience.

WHEN TO INTRODUCE.

Question.—Which is preferable in requeening—the swarming season, after the main honey-flow, or in the fall when there is but little brood?

Answer.—Just after the main honey-flow, other conditions being the same. From years of experience I have found that more queens are superseded just after the basswood yield of honey than at any other time of the year; and at times when the bees seem willing to supersede queens they seem equally willing to accept a new queen in place of their own. Three-fourths of the exchanging of queens which I do is done at this time.

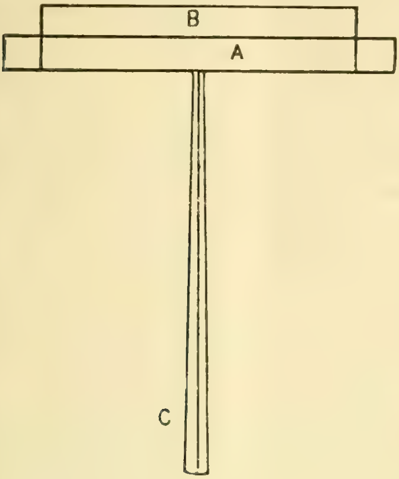
[We never supposed that the feet had any thing to do in causing the cramps, though it is possible. At all events, we have never observed that the feet were caught in any way while the abdomen was curved up. At first we concluded that such cramped queens would never recover; but later observation has convinced us that, if not put back in the hive, they will generally, if not always, straighten out if given time enough—say four or five minutes. We had about come to the conclusion that the extraordinary curvature of the queen's abdomen when picked up by the wings caused the segments to become temporarily stuck by being folded in against each other. This is only a surmise, however.

As to whether the accompanying bees shall be removed from the queen before introducing, we have also come to the conclusion that it makes no difference whether they are or not, and hence we always leave the bees with her.—ED.]

Heads of Grain, from Different Fields.

ANOTHER COMB-LEVELER.

I inclose a sketch of what I call a comb-leveler for comb in sections. The following is a description. The bar A is a ½-inch bar of iron, square, and 5 inches long. B is a piece of steel fastened to the bar A. The operation is as follows: The implement is warmed on a stove, or by other means. It is then handled by the handle C; the steel B, being warm, and placed in the section, cuts off the required amount of comb from each side of the section.



CYRUS C. ALDRICH.

Morristown, Minn., March 19.

[We see no reason why this device should not work. It is simple and cheap, and can be easily tested. Whether the idea itself of leveling combs down in sections so as to get better section honey belongs to Mr. B. Taylor, we can not say.—ED.]

WHAT IS HONEY-DEW?

In an article in *Bienen-Vater*, Jul. Steigel insists on a clear discrimination between plant-louse honey and honey-dew. Not only that, but he insists that there is no such thing as plant-louse honey gathered by the bees. Close observation will show that, where plant-lice are at their work, wasps or other insects may be in attendance, but never bees. Bark lice, or scale lice, are a different thing. The result of their work is an entirely different product. Located, not on the leaves, but on the twigs and tender bark, the scale lice cause the sap to run, far beyond their ability to consume it, and, once started, it continues to run for weeks. This the bees gather, and there is nothing repulsive about it, any more than there is about the sap gathered from maple-trees. At times it is a great benefit to the bees, the main drawback being that such honey is not good to winter on. If I remember rightly, Prof. Cook told us something about the two kinds at one time, but I don't remember to have ever seen the statement that bees never gather the exudations of the aphis. If Mr. Steigel is correct, it is well to have the fact known.

Marengo, Ill. C. C. MILLER.

[The idea that scale lice do not secrete themselves, but cause the twigs to secrete, what we sometimes call honey-dew, is a new idea. We hope it is correct; for if so we can stomach the product a little better. Will Prof. Cook please let us hear from him on this point?—ED.]

A PLEA FOR SHORTER APICULTURAL TERMS.

Friend Root:—You "prefer catalog to catalog*ue*, and program to programm*e*." That is good common sense; so it seems to me, at least. Now why not say "floor" for bottom-board, and "queen-bar" for "queen-excluder." Just try queen-bar one week in your apiary, in the busy season, and I am pretty sure you will not backslide to "excluder." Bar is short, and easier, and expresses exactly what you want to say; and the same remarks will apply to floor instead of bottom-board. S. T. PETTIT.

Belmont, Ont., Can., April 10.

[Yes, we are with you on the use of all kinds of short cuts; but when it comes to the matter of changing old terms to something better and more accurate, that is another question. We have tried to change names to our sorrow. But we have been partially successful with one; viz., "bee paralysis" instead of "nameless bee disease;" but even now we notice in some of our exchanges that the old name is still floating, and that many of our correspondents, in writing to us, still hang to the old nameless name. Of course, we substitute the new name. —ED.]

A PROPOSED NON-SWARMER.

The past two seasons I used a device that has seemed to work well; but as the past season was a very poor one it is hard to judge of its merits; but I should like your opinion of the plan, which is this:

I bore an inch hole in the front of the hives, just above the entrance (which hole is corked up until the first swarm issues). I then catch and cage the queen (my queens are all clipped), and place the new hive on top of the old one, placing a false front on the old hive, with a strip along the back that closes the entrance to the old hive, and a wire cone bee-escape that goes through into the old hive at the inch hole mentioned. I have a slit 3 inches long and ⅜ wide up through the bottom-board of the new hive. As soon as the swarms commence to return they alight at the old entrance and follow up between the front of the hive and the false front, up into the new hive. I turn the queen in with them, and they are speedily at work in their new home, with all the field-bees joined with them; and all the bees that come out of the old hive, so long as the device remains on, are added to the new swarm, while the old hive is so reduced in strength by the time the first queen hatches that there is no danger of swarming again. The device must, of course, be removed in time to allow the young queen to return after a wedding-flight.

The only trouble I experienced was from the escapes getting clogged up with drones; and I should like to know the best size and shape to make them, to prevent that. I should also like to know what objections are likely to arise to this manner of preventing after-swarms.

C. F. BATHAM.

Houstonia, Mo., March 19, 1894.

[As we have never experimented with non-swarming methods we referred this matter to Dr. Miller, who replies:—ED.]

Perhaps all that is necessary to prevent clogging in the cones is to have them larger. One with an outlet half an inch or more in diameter would probably not be clogged. An objection to the plan, aside from the extra trouble, is that the old hive has no bees entering it for a week or so, and all bees old enough to fly out leaving it. That will result, at least at times, in the partial destruction of the young brood. Would you not accomplish the same result, with less trouble, by the old method of moving the old hive to a new location at the time of hiving the swarm on the old stand? The only advantage that your plan has is the greater depletion—a depletion that may be carried to excess. If the simple plan mentioned does not deplete as much as you like, then you can do this way: Hive the swarm on the old stand, setting the old hive beside it, but with the entrance in another direction. A week after swarming, put the old hive in a new location. In this case the brood stands but little chance of being neglected, while all the bees will be added to the swarm that your plan would give them.

Marengo, Ill. C. C. MILLER.

AN OFF YEAR FOR CALIFORNIA.

This is going to be one of our off years in this southern county, for honey. I do not look for an extracting. The off years are becoming monotonous — '91 and '92 no honey, and now '94 none. It will give the glucose fiends a chance to get in their work as they did in '91 and '92. There was not a hundred tons of honey gathered, yet they shipped that many carloads, purporting to be pure honey.

Newhall, Cal., Mar. 30. G. W. LECHLER.

HOW TO SMOKE BEES OUT OF SUPERS.

I got hold of an idea last summer, in the way of taking off crates of sections, that beats all of the escapes I have ever tried yet. I call it my smoke-house. I took a Simplicity body and nailed a bottom to it, and pieces around the top edge within half an inch of the top for the super to rest on—that is, my size of the super for the ten-frame hive. Then I bore a 1½-inch hole in the center of one end, and set the crate on, and blow smoke in at the hole with a smoker; and you would be surprised to see how soon the bees will be out of the crate. The smoke comes up so evenly all over that they can't stand it. Robbers have no chance to bother; and by using a brush you can keep the young bees all at home. S. S. KISSEL.

Horatio, Ohio, March 22.

SUNFLOWER TO SHADE HIVES.

Last spring my six-year-old Winnie planted some sunflower seeds not far from the beehives. During the summer, while the bees were working on the blossoms, the idea occurred to me that the plant would make an excellent shade for the hives. By setting two plants at each hive, south and west, I think there would be sufficient shade from the middle of June till along in September, or as long as shade is necessary. As we live on a new place, and have no trees large enough for shade, I will plant sunflowers at each hive this spring. The plants may be transplanted, and will grow equally well, and will produce a greater number of flowers, though not as large as those from plants not transplanted.

Glidden, Iowa. MRS. M. E. MOFFATT.

[On our old honey-farm we grew sunflowers to test them for their honey, but we do not remember to have noticed that the bees worked on them. It is said that bees will visit them at times; but you refer to them only as shade. Those we have grown would be too tall and spindling to afford very much shade.—ED.]

OUR SPECIAL ARTIST'S METHOD OF CLEANING WALL PAPER.

As we at our house are in the midst of house-cleaning, it has occurred to me that the knowledge of how to clean wall paper properly would be a thing greatly to be desired by many of the readers of this journal. Preparations of various kinds are sold in many of the stores; none are any better than the one I use, and several are expensive and uncertain, while the cleaner I shall describe is neither expensive nor lacking in its qualities. We have used this cleaner for years, and know "whereof we speak." Prepare the cleaner, just as given below, and any one can make a success of it.

Take a quart of finely sifted common white flour, and pour boiling water upon it, to scald it thoroughly, and make a moderately thick dough. After removing it from the stove, add one liberal cup of common household ammonia and mix very thoroughly, so as to permeate the mass. When cool enough to handle, cut the dough into convenient lumps, and, while it is now sticky, knead dry flour into it until the stickiness is removed and it can be handled with ease. Don't add any more dry flour than will accomplish the desired result, or else the mass will become crumbly. It is now ready for application to the walls, which must always be done in good long strokes, always being careful to wipe or work from the cleaned paper into the dirt, and never the other way. Moreover, after each wipe, the dirt adhering to the lump must be kneaded into the mass so as to present a new surface to the work. The lump can be used until it becomes quite dark with dirt. Last night I cleaned a room 12 x 14, ceiling and all, with but four good handfuls, and in about an hour and a half. This same paper had been cleaned three times before, and to all appearances it can be cleaned several times more. The possession of the above has been a source of comfort and saving to us, and we hope it will be tried by others.

Cleveland, O. R. V. MURRAY.

IN FAVOR OF THE TEN-FRAME HIVE.

Brother Root:—To-day I made a visit to my Bronson apiary, numbering 105 colonies, and found them in splendid condition. I always winter this apiary outdoors in Root's old-style two-story chaff hives, with uniform success; and if you will promise not to let Bro. Miller and those other "fellers" pitch into me I will tell you why.

A few years ago I thought these hives too large to secure the best results in producing comb honey, and I reduced the size of the most of them from 10 to 7 frames by the use of dummies. Each year thereafter I noticed that the hives in which the dummies were not used wintered the best, were the strongest in the spring, and gave the best results. Why? Because the colonies in such hives had an abundance of honey, and never required feeding. My experience for 20 years teaches me that the less bees are tampered with from Nov. 1st to May 1st, the better will be their condition; and I seldom visit my out-apiary between those two dates.

Last winter I lost only two colonies out of 107, and they were queenless, and probably had been so for some time before they went into winter quarters. Such experience conclusively proves to my mind that the 10-frame hive will, on the average, produce the best results.

If you wish I will tell my method of operating in producing comb honey, and how I produced 4 tons from 120 colonies last year.

Norwalk, O., May 4. S. F. NEWMAN.

NOT MARKING QUEEN-CAGES.

I think it would be well for you to warn your advertisers not to send out queen-bees without marking their names on the cages. Last fall I received two warranted queens in the same mail from different parties, and no mark to distinguish them. Had either proved mismated it is probable that injustice would have been done and hard feelings caused. Again, this spring, among other orders, I ordered, a week apart, a warranted queen for a neighbor and a select tested queen for myself. A queen arrived without any mark on the cage; so, judging from the time since ordering, I passed the queen to my neighbor as the warranted one; and now, a week later, comes a queen with the sender's name, which proves to be the warranted one, which I have had to take or run the risk of changing queens again. Had this warranted queen proved mismated, and the cage not been marked, I should have been apt to think that the party I bought the select tested queen from had cheated me; and if I had claimed another queen from them they would think likewise of me. R. F. RITCHIE.

Rumford, Va., April 28.

THAT VANILLA-FLAVOR TASTE IN SWEET-CLOVER HONEY.

I saw a query in Stray Straws of March 15th as to where or how bees got vanilla flavoring in honey. I think they get it from sweet clover. If you will put a couple of seeds in your mouth, and chew them, you will find they have a strong vanilla flavor. Here in this section of Colorado, where we raise so much alfalfa, sweet clover is voted a nuisance; yet it grows wild along the ditches, and the bees work on it.

Timnath, Col., April 10. ABRAM ELLIOTT.

[No doubt you are right as to the source of this vanilla flavor.—ED.]

MAPLE SUGAR, ETC.; SOMETHING FROM BERT COOK, SON OF PROF. COOK.

I am glad to see father again writing for GLEANINGS. From all I hear, I think that he enjoys his California home very much.

I see your remarks about the maple-sugar product in Ohio, and you can include Michigan right in. We almost always make 250 gallons of A 1, but this year only 115 gallons, and about 100 of it is *rank*. Too bad. Uncle's bees are in fine shape, and we have 15 acres of alsike clover that will bloom for them this year, so we expect quite a flow from that.

Owasso, Mich., April 21. BERT COOK.

[We are very glad also, friend Bert, to see your father's communications in our columns; but we are sorry to hear the unfavorable report in regard to maple sugar and syrup in Michigan as well as Ohio. But it only seems to emphasize the fact that all industries—especially rural industries—are uncertain.—ED.]

GOOD FOR SEALED COVERS.

My bees had a good flight March 4 and 5. Out of 55 colonies, 51 were alive, and all seemed strong; 45 had sealed covers. Among the dead ones, two colonies had sealed covers and two had on Hill's device. E. U. PARSHALL.

Cooperstown, N. Y.

[Is there any question upon which there are any more diametrically opposite experiences than upon this sealed-cover idea for wintering? At one time last year there would be a batch of reports praising the sealed top, and at another time, for the same winter, there would be as many or more declaring the sealed cover a fraud and a mistake. We shall advocate, however, absorbing cushions, because they have done well by us. But the sealed covers gave us a black eye that we haven't forgot, and won't for a while.—ED.]

GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year.

For thou art my rock and my fortress; therefore for thy name's sake lead me and guide me.—PSALM 31: 3.

The last *British Bee Journal*, April 26, alludes to "the remarkably uncertain character of the weather during the last few days," and we infer that it has had a depressing effect upon "the hopes and prospects of bee-keepers."

We have received a large sample of what is said to be genuine orange-blossom honey. Its flavor is not quite equal to samples we have tasted before. It is good honey, however, but not equal to some of the Southern honey we have tasted.

Cramps in queen-bees when picked up—what causes them? is a question that is discussed by friend Doolittle in another column. We now have quite a number of queen-breeders. We should be glad to have them throw on a little extra light from their experience.

Prospects for a fine honey crop this season were never more flattering. If we are not *sure* of a good flow from clover and basswood, we are *sure*, from the heavy brood-rearing now going on, of a large force of bees that will be ready for business *if* the honey does come.

We have said much about the practicability of the bicycle in these columns; but it is evident that very few bee-keepers yet fully appreciate its real value for out-apiary work. We have been trying to get Dr. Miller on one, but so far he doesn't seem to enthuse very much. Perhaps many would get a wheel if they really thought they could ride. Most men will learn to ride, with a practical wheelman to show them how, in about half an hour.

In speaking of our course regarding the publication of the analyses, Mr. Hutchinson says: "I have every reason to believe that this course [the one we took.—Ed.] is taken from the best of motives." This is as generous as it is kind. We have every reason to believe that the attitude Mr. Hutchinson has taken on the same question is also taken from the best of motives. We do not object; but, on the contrary, we court candid criticism when such a spirit is back of it.

Dandelions seem in our locality to be unusually profuse and persistent, especially on the Rootville lawns. Although we cut 'em down nearly every day with a lawn-mower or scythe, yet their heads will bob up here and there as if we had made no effort to cut 'em off from the face of the earth—around our houses. But the bees—what a gala time they have been having over them! Whether they get much honey, they are carrying load after load of green pollen, and the combs are speckled full with the stuff.

The following, from the General Manager of the Bee-keepers' Union, will explain itself:

> *Bro. Root:*—Some are criticising me for not prosecuting Mr. Heddon, and want to know why the Union did not do so. I desire to state the facts in a few words, and also to correct the error about Mr. Soper having sent me the samples said to be Heddon's adulterated honey. I shall not state how they came, nor from whom—but that I have not had a line nor any samples, either pure or adulterated, from him for several years past.
>
> I would willingly prosecute adulterators; but the Board decided that we must have evidence strong enough to reasonably expect conviction. This we did not have. THOS. G. NEWMAN, Gen. Manager.

There is no need for haste in this matter. The Board probably has been waiting to see all the facts pro and con.

A rather spirited controversy, we should judge, has been going on in the *British Bee Journal* between the editors on the one hand and a correspondent on the other. In order to close up the discussion, the editors insert a long article from him, criticising them rather sharply, but refrain themselves "from adding a word of comment on it," because of their "desire to avoid even the risk of further reply;" and they add that "all that has been done or said in the matter by the editors of this journal is recorded in print, and they (the editors) are perfectly content to be judged thereby." This is not only wise, but an exceedingly fair way of dropping the discussion; and on similar ground we at present feel disposed not only to let Mr. Heddon speak for himself, but have the last say within reasonable bounds.

There seems to be no special need this spring of going to the expense and trouble of gathering statistics as to how the bees have wintered; for reports, with hardly an exception, show that they have come out unusually well. Not only is there no loss worth speaking of, but the colonies are unusually strong. Never before do we remember of a more favorable spring for bees. In our own locality hives are filled with honey from fruit-blossoms and dandelions, and in our own apiary we have had to give more room, and divide. Our neighbors have had swarming, and yet fruit-bloom seems to be only fairly out. By the flood of orders, we should judge that a similar state of things prevails throughout the North. It should be said that, in certain parts of the South, frosts have done some damage.

The editor of the *Progressive Bee-keeper* says we had 20 columns of matter to boom our own wares in the April 15th number; but he failed to observe that we also gave in that same number 55 columns of reading-matter on the subject of bees, 13 columns of other reading-matter, and 17 columns of advertisements from other parties—in all a 52-page journal. We agree to give our readers only 36 pages semi-monthly; but as we had more than our usual advertising matter we put in extra pages. The *Progressive Bee-keeper* is a 28 page monthly, and yet its editor took nearly 7 columns for his own advertising in his last number, or nearly one-eighth of his regular issue. We added 32 columns *extra* to our regular issue, and took 18 of these (as we count it) for *our own* advertising.

IS BEE PARALYSIS INCURABLE?

WE are beginning to fear that bee-paralysis in warm countries is an incurable disease, for all known methods so far have failed. Besides the case of Mr. McFatridge, mentioned by Rambler on pages 369 and 371, Mr. T. S. Ford, of Columbia, Miss., has been having quite a time with it. It threatens to destroy his apiary, and yet he has tried faithfully every remedy we could propose. It is, therefore, for the South, and certain parts of California, more to be dreaded than the much-dreaded foul brood, because the latter is curable. Inasmuch as bee-paralysis may be disseminated through the queen, queen-breeders should post themselves as to the symptoms of the disease; and the first suspected case of it should be stamped out immediately. But purchasers of queens should not jump to the conclusion too hastily that bee-paralysis comes from any particular queen received. Witness the case of Mr. McFatridge, above referred to.

But it should be remarked that bee-paralysis seems to yield to mild measures in the North, and hence has no terrors for the Northern bee-keeper.

We are pleased to know that Prof. Cook promises to experiment, and we hope he will find an antiseptic that will cure.

FOUL BROOD: ITS NATURAL HISTORY AND RATIONAL TREATMENT.

THE above is the title of a new work by Dr. Wm. R. Howard, of Fort Worth, Texas, and published by G. W. York & Co., Chicago. It contains 47 pages, about half the size of this. We have not had time to read the work through; but, so far as we are able to judge, it is the most practical and reliable book on the subject of foul brood alone that we know of. It treats it practically and scientifically. It reviews and criticises the works of Cheshire, McLain, Mackenzie, Wm. McEvoy, and Prof. Cook. The whole is put in popular form, so that any one can understand the scientific aspect of the disease. It is made up of a series of propositions, each one of which the author demonstrates very carefully in a page or two of matter. After reading them through we can thoroughly indorse them. For instance, Prop. 2 is particularly sound. It reads as follows:

> The decomposition of chilled or dead brood does not produce foul brood; and putrefactive non-pathogenic germs do not produce those of a pathogenic character.

The latter portion of the work is dovoted to the treatment and cure of the disease. He says on page 25:

> I regard the use of any and all drugs in the treatment of foul brood as a useless waste of time and material, wholly ineffectual, inviting ruin and total loss of bees. Any method which has not for its object the entire removal of all infectious material beyond the reach of both bees and brood will prove detrimental and destructive, and surely encourage the recurrence of the disease. The reader is referred to the criticisms in the following reviews for further discussion of the methods of treatment.

After discussing the treatments recommended by Cheshire, McLain, Mackenzie, and McEvoy, he indorses the latter's plan by the following:

> From my experience with *bacillus alvei*, its nature and growth, it would seem clear that Mr. McEvoy's method, though simple and plain, would prove efficient, for it has been noted that any method which removes the foul-brood *bacillus* from the reach of bees and brood will cure the disease. His plan has for its aims, first, to remove all foul combs with their contents from the bees, and destroy them by fire; secondly, to cleanse from the bees all the honey taken with them, which contains the infectious germs, before any brood-rearing is commenced. The labor of these first four days taken away generally removes most of the infected honey, when full sheets of foundation are given, and worked out; the infected honey is consumed in comb-building; brood-rearing is commenced in new clean combs, and a healthy colony results. The work of handling the infected colonies is done *in the evening*, in order that no robbing may result, to carry the infection to other colonies.

Our readers will remember that this is essentially what we have recommended, and what we used with such success in curing some 75 diseased colonies in our own apiary several years ago, with the exception that we boiled the hives. We at one time thought it was not necessary to disinfect them. Later experience showed that colonies treated and put back into their old hives without boiling showed sooner or later the same old disease; but when the hives were immersed in nearly boiling water the disease never reappeared.

It would seem that the author, before he began his investigations, was prejudiced against the McEvoy method; but the mere fact that his studies and researches changed his previously mapped-out conclusions would indicate the fairness with which he went about the work. In the concluding paragraph of the book he says:

> Thus it will be seen that McEvoy's method of treatment, which at first was so unpopular, and seemed so far from being correct, has, much to my surprise (and, need I say, disappointment?) been shown to be the only rational method laid down among all the writers on this subject.

Many of our scientific investigators have, in the past, endeavored to make their experiments prove their previously conceived ideas; but here is a case where it worked just the other way. The price of the book is 25 cts. by mail. It can be obtained of us or the publisher.

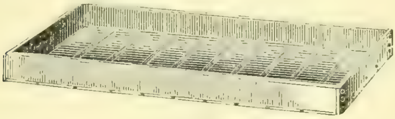
NOTES OF TRAVEL
BY A. I. ROOT.

ON THE WHEEL—HIGH-PRESSURE GARDENING.

Oh dear me! what a story I did tell in our last issue about the women-folks down at Jordan & Johnson's setting out 40,000 plants from the seed-bed in a day! It was only *4000* instead of 40,000. The price they get is 2½ cts. per 100, or 25 cts. for 1000 plants. Now, if the dear friends who read GLEANINGS will only "take me as I mean, and not as I say," I shall be greatly relieved. Yesterday, May 2, I took another run down there on my wheel to see how the great plant-ranch was prospering.

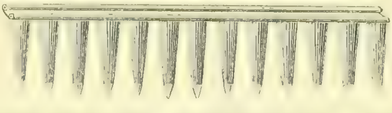
About a week ago we had quite a frost here in Medina; but I found that they had still more of a frost in the low lands at the swamp. It had done quite a little damage, both to onion and celery plants, where they were not sufficiently hardened off, or of size enough to have sufficient root to withstand the freeze. Here is a lesson in hardening off. Soft green plants right out of the greenhouse can not stand much sun, frost, or wind. I cautioned the friends who were going to raise the large amount of Prizetakers about being in a hurry to get at it. On inspecting the grounds several things were pretty evident. The plants put out before the frost, where they had sufficient time to take root, were probably not hurt—that is, where they were carefully set. Some that were put in by small boys will probably, many of them, die. Those put in after the frost, and that had got a little more root in the hot-beds, are looking nicely.

During my former visit I did not find the women-folks at work setting out plants; but this time the whole establishment was running at full blast. Now, to explain to you what I learned we shall commence with the transplanting. Let us first consider the boxes for holding the plants.



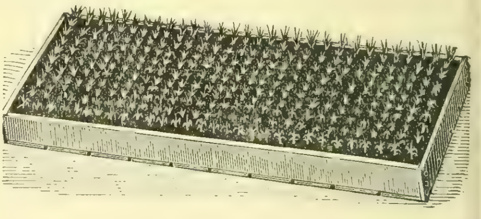
TRANSPLANTING-BOX FOR SEEDLINGS.

Let the above represent one of the boxes where the women set the plants. I should think they have about 3 inches of swamp muck in the box—perhaps not more than 2½. The muck is sifted so as to get all the lumps and trash out, and then they press it down into the box and smooth off with a stick to the level of the top of the box. A man does this, and the boxes full of soil are piled up ready for the women. They work standing up at a bench—at least, I did not see any of them sitting down. Each box contains just so many plants. Spacing is done with a tool similar to the one I illustrated in our book, "What to Do." Below is a cut of it.



SPACING-TOOL FOR TRANSPLANTING, SOWING SEEDS, ETC.

Now, instead of going to the expense of making these tools of metal like the above, they simply make them of strips of wood. One is used for the *end* of the box; another is to be used along the *side* of the box. These spacing-strips are made of pieces of wood, say a little wider and a little thicker than common lath. Take such a strip and cut saw-teeth in it; but before cutting the teeth have it planed down to a sort of knife-edge on one side. The result is, that these blunt saw-teeth will be tapering, something after the fashion of a pyramid, but considerably thinner one way than the other. All that is needed is to have them come up clean when they are pressed down into the muck in the box. The long strip is used first, set down at the sides of the box first on one side and then on the other; then the short strip is pushed down, letting each end tooth strike in the prints of the longer one. This, you see, spaces the boxes accurately. At first I was very forward in telling them of my machine, pictured on page 106 of GLEANINGS for this year, because we space a whole boxful at one clip; but I soon found out that I was not quite so much ahead of our friends in the swamp, after all. I will try to make it plain without illustrations more than what we have above. Suppose the boxes I have described were placed on a bench in front of the workman, one end of the box being close to him and the opposite end raised about 6 inches higher than the end next to him. The workman, or woman, rather, takes a spacing-tool in her hands and presses it into the soil, say at the end of the box near her. Then she proceeds to put in the seedling celery-plants—one in each cavity made by the tool. As she drops in the little plant, with the end of the finger she presses the moist soil against the root. When the row is finished there is a series of cavities left where she presses her finger, almost sufficient for setting in the next row. But to make it regular and true she takes the spacing-stick again and presses it down, letting each tooth of the tool go into one of the cavities left by the fingers, or pretty near there; for the prints of the long teeth along each tell exactly where the spacing-tool should be pushed down. You see, this makes the whole operation very simple, and it is not any wonder at all to see each box of plants look exactly like the one below, when finished.



A BOX OF WHITE PLUME CELERY-PLANTS AS IT APPEARS WHEN FIRST TRANSPLANTED.

As fast as one of the women fills a box like the one shown above, she sets it on a broad plank that extends out of the window, and down an incline to the cloth-covered cold-frames—the cold-frame I described in our last issue; but I think a little further explanation may come in right here. The beds are about 40 feet long, which is a little shorter than our own, which are 50 feet. Now, *our* beds are filled with soil; but these I am describing are not. In fact, the soil is all shoveled out down to, say, about a foot below the natural surface of the ground, and a great part of it is piled in the paths between the beds. This serves the double purpose of keeping out frost when it is cold, and keeping the inside damp during very hot weather. Then, about 10 inches from the bottom of the bed, some stringers of scantling are arranged—three lines of stringers, in fact—to hold the boxes of plants. The middle one holds the ends of both rows of boxes; the other two, one near the north and the other near the south side of the bed, hold the other ends of the boxes. This gives a space under the boxes of plants of nearly a foot; and in this space two lines of steam-pipes may be run during severe weather. Above the plants when first transplanted is the cotton sheeting I have described.

Now, with all the experience I have had in plant-raising I learned quite a new trick in just a few minutes. Perhaps I might explain first that the women-folks had all heard of A. I. R., even if they did not know him personally, and in a little time we were chatting and discussing our work as if we were all blood relations. I suggested that our boys always use a stick or wire nail for pressing the plants into the ground, and I gave as a reason that it made their fingers sore. One of the men slyly insinuated that our Medina boys must be "soft-fingered." I defended them by saying that it was the difference between their beautiful soft swamp muck and our Medina clay soil, even when the latter is softened by an abundance of stable manure. But I told them, too, that, although our boys might be *soft*-fingered—some of the small ones—I was quite certain that none of them were *light*-fingered or very likely to be.

I had to do so much talking with one of the bosses that he naturally forgot about his part of the work until somebody called out, "More plants!" He took a tin pan and made haste to gather some plants from one of the beautiful plant-beds. Instead of taking them clean as they went, he just thinned them out by taking a pinch here and there. In our soil I fear he would have pulled off the roots; but not so with this soft swamp muck kept slightly moist by the sub-irrigation I have told you about. After he had pulled out a panful one would hardly notice that any thing had been taken from the bed; and he said they had been doing that for weeks. As fast as they made room, little celery-plants were coming up underneath, taking the places of those that were removed. But some of the plants he took this time were what we call long-legged. The bed was pretty well crowded, and I think some of them must have had leaf stalks 3 inches long. Of course, they could not hold themselves up; and as they put them in the boxes they let the tops fall down, all in one direction, toward the front of the box. I asked the proprietor if he supposed those long spindling ones would ever come up in the world. You see, *we* have had some failures right along in this line.

"Why, to be sure they will, Mr. Root, if we manage them right. Come and see."

Then we went outside to those cloth-covered cold-frames. There the boxes of plants stood in long rows. The plants just put in lay flat down on the ground, as I expected they would. Some they had planted in the morning had raised up a little. Those planted 24 hours before were almost straight up; and where they had been out 36 hours or more, every little stem stood as erect and handsome as it did in the seed-bed, and yet each plant had room enough to stand up and put out its roots and grow.

Now, I have made a big mistake in being in too much of a hurry to give my plants a little sunshine. These beds, as they have them made, preserve a moist atmosphere, and heat enough from the sun gets through the cloth to warm them all they will bear. No wind or current of air is allowed to strike them for about two days. While the weather is mild and the air still, the sheeting is rolled up nights so as to give the benefit of the night air and the dew. Mr. Johnson agreed with me that a gentle shower, or the dews of night, are better for plants than any thing man has yet invented.

Now, perhaps you may think I am making a good deal of fuss about a simple matter; but here I saw this whole matter of transplanting from the seed-bed into boxes carried on with mathematical precision and accuracy. Just 25 cts. per 1000 for transplanting, and every plant, so far as I could see, grew. There were not any vacancies nor any missing places to be filled up afterward. Even during the month of May they were still constructing more cold-frames to hold more boxes of plants—not so much to protect the plants from the cold as to protect them from the sun and wind. Mr. Jordan says the wind often does more mischief, if it is not carefully kept out, than either sun or frost. I did find a few boxes with an uneven stand in them. Said friend J., "Shall I tell you what made that break in these few boxes right here at this corner?"

I signified my anxiety to know. Then he stuck the toe of his boot toward a crack between the boards. This crack was hardly large enough to notice; but it let enough wind through to kill the plants. Said he, "I wanted these beds all made of matched lumber; but they thought any thing was good enough for this purpose, and now you see the result." It made me think of the time when I lost plants enough to pay for glass to cover them nicely, during just one frosty spell of weather. Of course, there are extremes both ways in this matter of going to the expense of doing things well. Sometimes rough pine boards will answer just as well as planed and matched lumber; but I am more and more convinced that hot-beds and cold-frames should be made tight and strong. The same operations that produced these beautiful celery-plants will work with almost any kind of plants; and boxes of beautiful cabbages, tomatoes, lettuce, etc., attested the fact.

I suggested that it would be quite a saving in fixtures if the beds could be filled right up with soil, and the transplanting done right in the beds; but Mr. Jordan took me to a part of the premises where he had men putting out plants in that very way. Of course, they could not very well ask the women to get down on their knees outdoors over the beds. Well, he said he had carefully figured out the expense; and while the work done by the women was much more successful, the expense was very much less, even when we counted the cost of the boxes, having a man to fill them with dirt and another to carry them out to the beds, etc.

The women had a very comfortable place to work in, and, judging from their looks, they enjoyed their work. I suggested to one of them that I thought setting out plants was just as nice as teaching school. Good transplanted celery-plants are worth $3.00 per 1000, or $25.00 for 10,000. And one great trouble is, that, when you *pay* for transplanted plants, you do not always get them. Here were beautiful, strong, well-rooted and well-hardened plants; and you can figure out the cost yourself from the facts I have given you. As the firm of Jordan & Johnson are, however, planning to plant something like 75 acres, they had not, at the time of my visit, any plants to spare.

I left Medina at 2 P.M. The distance of 12 miles I made in a little over an hour, and I spent another hour gathering up the facts I have given you above; but I was not ready to go home yet. I had had many invitations from the "land of Canaan," from my good friend Notstein, who had urged me to visit the "land flowing with milk and honey." As it was only about three miles further I soon made it on the wheel. Friend N. was away from home; but I had a very pleasant visit with the wife and family. One of the little girls was just coming home from the postoffice with GLEANINGS in her hand; so you see they knew a good deal about *me*, even if I did not know very much about *them*. I enjoyed my visit very much at Willowdale Nursery. We discussed the new "iron-clad" plums that the curculio can not bite because its teeth are not strong enough; and then I went up among the bee-hives, and saw the sections being filled with honey from fruit-blossoms. They said it was the first time they had ever known bees to work in sections in April, and I do not know but it is the first time I have ever seen them do it here in our locality.

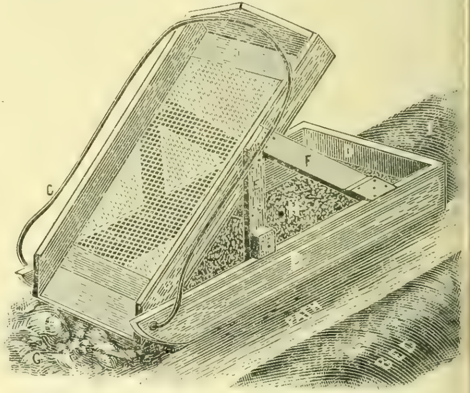
Just before crossing the border, as nearly as I can make it out, that separates the land of Canaan from the rest of the world, I passed a piece of woodland partly cleared up. Well, the whole surface of the ground under the trees was covered with wild flowers to such an extent that it looked as if it were covered with snow, except that the snow was pink instead of white. But no snow ever exhaled such a wondrous perfume as came from that woodland lot just over the fence. No wonder I thought of a land flowing with milk and honey. Before I left I was treated to a glass of luscious milk, and, I might add, some of the honey gathered from fruit-bloom in April, had I stopped long enough to remove it from the hives.

I was 15 miles from home, and it was well toward night; but with the little light Victor Flyer I made the first 6 miles in 30 minutes—or, to be exact, just 29 minutes. The rest of the road, however, was so much of it climbing hills that I did not keep up so much speed. Just think of it—32 miles after two o'clock in the afternoon, on a little wheel that I carry about easily with one hand, and not a bit tired at that! My impression is, that the new wood rim is a little more springy, and bounces over obstructions with less injury, than a wheel made all of metal.

HIGH PRESSURE GARDENING

GARDENING IN THE MONTH OF MAY.

I do not know, friends, but my talk will be all gardening this month, and nothing else; but if you could take a look out of the window where I sit dictating just now, and catch a view of the plant-beds of that quarter-acre (that is to support a *family* you know), you would not be much surprised; for I tell you that the plant-bed garden promises to bud and blossom, and bring forth, more than even anticipated. One thing begins to be evident: It takes quite a little *time* to get the soil in any plant-bed up to its best. The way we proceed now is first to spade up the soil in the bed down quite deep, say a foot or more. Our good friend Ben, with his German thoroughness (as well as strength), is getting to be quite an expert in the way of "making up the beds." When he first came here he could not talk English; and while working for me he has not only learned to talk, but to read and write. I notice he writes the names of the plants on the labels very neatly. Well, he does not talk very much —probably because his tongue does not rattle off English quite as glibly as do those of the small boys all around him who are setting out plants. Another thing, Ben's mind is so wholly occupied by his work that he has not time to talk very much. Well, even if he does not say so, I know he enjoys working in the plant-beds better than almost any other work. This he shows by his actions. Well, he has learned just how to spade up the bed and work in the stable manure. We put in from one-fourth to one-third manure in each bed. Instead of "spading" I should say "forking," for it is all done with a potato-fork; and while forking it up, every forkful gets a clip from the four-tined instrument, to pulverize the soil as much as possible. After forking, it is further chopped up with a wide steel-toothed rake. Then the whole of it is sifted with the machine shown below.



PULVERIZING AND MIXING THE SOIL IN PLANT-BEDS.

I have given a picture of this before, but it proves to be of so much importance that it will do no harm to give it again. You can make one yourself, or you can buy one of the dealers who keep them for sifting sand, gravel, etc. We use two screens of this kind—one coarse and the other fine. For a new bed we used the coarse one. Perhaps six inches of the chopped-up earth and manure is shoveled on the screen. A small boy, with the back of a short-handled rake, rubs and pounds the dirt on the screen, to make it go through; then Ben shovels the coarse trash—manure and lumps of dirt—away from the bottom of the screen, and spreads it out where the dirt has just been shoveled off. The screen is then moved along. The result is, that all the coarse stuff is at the bottom of the bed, and you have nothing but soft fine soil mixed with the manure, on the surface of the bed. We rarely get an extra crop the first time a bed is made up. If we had good rich garden soil and very fine old manure, such as they sometimes find where they move an old barn or stable away (just think of it, friends, the amount of fertility that lies idle year after year under almost every old barn and stable in our land), there would be no difficulty. Well, even if we do not get a full crop the first planting, we are getting the ground into "heart" as the old-countrymen say. The next time one spades it up—that is, after the first crop is off—he brings the old manure and trash to the top. It is now a good deal rotted, and will work up nicely. But we manage to put in some kind of manure at almost every time of working it. Of late I have been paying 25 cents a barrel for poultry manure, and for a time I thought it did not pay very well; but I can tell you now how to *make* it pay. A few days ago we got some that was quite old and dry. I told Ben it would have to be rubbed through the screen along with the soil in the beds; and as the bed had been, almost ever since it was made, rather poor, and was just being made up, I told him to work poultry manure into that. The bed was close to the greenhouse, and I suspect it got a pretty good share of yellow clay that came out in making the deep walks inside of the greenhouse, between the beds. Well, they put in perhaps two barrels of hen manure in 50 feet of bed—beds 6 feet wide, of course. As soon as the bed was made up, and they took rather extra pains in sifting this and mixing it well, the boys set it out to Wakefield cabbage-plants. I told you in our last issue that we were sold out of the Wakefield. The plants had become rather spindling in the greenhouse, and I was afraid they would not grow; but the boys pushed them clear down to the first leaves, in the soft soil, and we kept the bed pretty well watered, and I was somewhat astonished to find every plant taking hold; and, almost before the last GLEANINGS had got into the hands of its readers, we had a *magnificent* bed of Wakefield cabbage-plants. Several summer showers helped them along, and now they are about the handsomest bed of cabbages I ever saw in my life. Other folks think so as well as myself, for almost everybody who goes by wants 10 cents' worth; and they are almost always pleased to find that they get 25 for a dime. Somebody said that the cabbage-plants they have up street at the groceries are 10 cents a dozen, and they are little spindling things that had not been transplanted at that. Well, these that grow over in the bed where the poultry manure had been put in were the deepest and richest green of any plants I ever saw. They were put out just two inches apart from center to center, with that closest spacing-board pictured on page 106. This spacing gives a little more than 250 plants to every running foot of bed; and a bed 50 feet long, at this rate, contains 1250 plants, worth, at the lowest wholesale price, $2 50 per 1000—or, say, $25.00 for a crop that occupies a bed 6 feet wide and 50 feet long for *only 30 days*. What do you think of that? Do you say, "Oh! that is theory; nobody can do that actually"? Hold on. Last Monday I received *$25.00 cash* for the celery-plants that our boys took from beds just *40* feet long and 6 feet wide. These celery-plants were started under glass, and occupied the ground for perhaps 60 days. We were at the expense of glass to cover the beds, and exhaust steam to heat them a part of the time. But, as I have told you before, our beds do not all earn as much. It is because they do not get as much *brains*. To take care of that quarter-acre plant-garden, and make it do its *best*, would occupy about all the time I care to work; and it would take, too, about all the brains I could scrape up—that is, to have it do its best. You may say, "Why don't you hire a competent foreman?" I do not *know* of any such individual. I doubt whether there is now one on the face of the earth who could make every bed boom *every 24 hours* as I know each bed *might* be made to boom. But I expect to see quite a lot nearly up to that standard, within the next five years. They must be "made to order," exactly as we grow the plants; namely, "grow" the boys and girls; and while they are growing in skill to handle God's treasures that come out of the soil, they need to be taught to grow in grace and in love—not only with the plants, but with the great God above.

I am getting so that I have no patience to fuss with any kind of vegetation or fruits unless I can have a soil like our plant-bed soil to work with. The bed nearest, right before where I write, contains those Timbrell strawberries. A small boy has been kept pretty busy picking off the blossom-buds, and now runners are putting out already in great profusion. It needs another boy a little older, and with more intelligence, to take each runner and place it so as to economize the room. Where the runners are putting out it would almost keep a boy busy. I asked Fred. a few days ago, if we didn't get ever so many more strawberry-plants out of our plant-beds than we did even from the rich creek-bottom soil down in the flats. He replied, "Oh, yes! to be sure we do—a tremendous sight more plants, and ever so much larger and stronger." Just yesterday we had 100 Parker Earle plants to go by mail; and, even after pulling off the blossom-buds, and trimming the plants about all we dared to trim them, the package weighed more than 4 lbs. I do not want to have you think that *all* the plants we have sent off this spring were like these. They have not been; but when I get my ideal plant-garden to working better, we are going to try to have them that way. And now it begins to impress itself on my mind that not only strawberries but gooseberries, currants, and raspberries, would give crops that nobody ever yet heard of or perhaps dreamed of, if they were managed on the plan we are talking about—that is, grown in rich plant-beds. In the first place, the ground around the bushes must be soft, clean, loose, and rich—yes, and well watered too; for with the big windmill we never expect any thing to get dry in our plant-garden; and nobody yet knows how much water rank-growing crops can use in hot weather. The *Rural New-Yorker* urged its readers to get rich by selling water—that is, the water that is contained in fruits, berries, vegetables, etc. Your customers will not complain—never fear. What they complain about is, that we carry them fruits and vegetables that are an imposition simply from a *lack* of water at a critical time. Another thing, the plant-beds, properly managed, absolutely prevent stamping the ground down hard all around them. Sometimes when a new boy goes to work for us he walks across the bed instead of going around it, and thinks nobody will find it out. But he might as well have tried to walk over a bed of snow, almost without leaving tracks. When I get around, the boy who walked across the beds gets called up; and I almost always find out who did it. Of course, we need plenty of "bars," as we term them—strips of light wood 6 inches wide and 1½ thick, just long enough to reach from one side of the bed to the other. In transplanting the crops, and in making up the beds, these boards are in constant requisition.

Do you say these beds are used only a part of the year? Why, bless you, they can be utilized every day in the year. During the winter time they should be full of cold-frame plants—that is, where you do not have any steam underneath; and in the summer time, after the call for cabbage and celery is over, every yard of space can be utilized in growing strawberry-plants. The strawberry-plant trade opens just as the vegetable-plant trade slackens up; and when there is not any demand for plants, every foot of bed can be utilized in raising crops of some kind. Radishes, lettuce, beet greens, etc., will be purchased almost every month in the year, if people can get them. It is lots of work, however, and it is lots of care. The proprietor needs to be constantly watching. Something is getting too much sun, and needs shading. Another thing does not have sun enough. Sometimes, though not often, the plant-beds are too wet. A thorough underdraining fixes this, however.

When a rainy day comes, it is often very fatiguing to pull up the plants and put them up safely, to be carried to the different homes. I do not think I ever saw anybody who did not get wearied, and more or less "rattled," by being asked again and again, "How much are these worth?" "Have they been transplanted?" "Have you any that have been transplanted twice?" "How much are these a dozen?" "Do you sell them any cheaper by the hundred?" "Are these early or late?" "Why do you charge more for tomato plants than cabbage-plants?" "Is it too early or too late to set them out?" etc. I do not often wait on customers unless very early in the morning or late in the evening. After a nice summer shower I frequently find customers out in the plant-garden, waiting, by half-past four in the morning; and a good many times between sundown and dark, after the helpers have gone home tired, somebody wants plants. Now, it is very perplexing to me to remember prices, and it also wears on me to get a catalog and hunt up prices from that. To help all around in this matter we have had some very neat thin basswood boards, 7½x14 inches in size, printed in large plain letters as follows:

PRICES OF VEGETABLE PLANTS.

25 Sweet-potato plants	**10c**	**1000, $3.**
25 Cabbage-plants	**10c**	
25 Celery-plants	**10c**	
12 Tomato-plants	**10c**	**100, 75c.**
12 Cauliflower-plants	**10c**	
12 Strawberry-plants	**10c**	

6 Pepper-plants, 10c; 100, $1.25.

100 Onion-plants, 15c; 1000, $1.

We have these tacked up in front of the store, and across the road on a neat little stake, right in the midst of the plants. We print them on one of our printing-presses.

OURSELVES AND OUR NEIGHBORS

BY A. I. ROOT.

Not that which goeth into the mouth defileth a man; but that which goeth out of the mouth, this defileth a man. MATT. 15:11.

The man of the world or the unbeliever spends his time and energies in warding off danger from the outside. The Christian fears only that evil which he finds *inside*, or in his own heart. The unbeliever fears and tries to protect himself from the damage his neighbors may do him—that is, such of his neighbors as are his enemies. The follower of Christ has nothing to fear from his neighbors, even though they be envious toward and at enmity with him. He fears only that he *himself* may be led or tempted to do wrong. We sometimes say of a man or boy, that he is his own worst enemy. The evil in his own heart may do him *harm*—may wreck his *soul;* but evil in the hearts of others can do him but little *real* harm. The great difference between the Christian and unbeliever, it seems to me, is right here: The one fears God, and fears to do wrong. The other fears the great outside world—the selfish world, and fears that *it* may do him harm. Our text says that the evil on the outside, or that which surrounds a man, can not well defile him. False stories and false accusations may for the time throw a *shadow* over his fair name; but if he is honest and sincere, his honesty will come out, and it will shine forth all the brighter for having been obscured a little while. Why, come to think of it, there is an old familar text, Prov. 4:18, which says, "The path of the just is as the shining light, that shineth more and *more* unto the perfect day." Those who are evil-disposed, and those who are envious, do quite frequently try to damage and slander the reputation of almost any honest and true man; but they do not succeed.

I suppose most of you have been recently considering the life of Joseph. For a time he seemed to suffer injustice and persecution almost everywhere. He was honest and innocent; but this very innocence seemed to get him into trouble again and again. His brothers hated him because he very properly informed his old father of the tricks they were up to. They decided to put him out of the way, and probably thought they had managed it very shrewdly. Joseph, however, was undismayed, for his faith was in God and not in man—no, not even in his own relations. He was reluctantly obliged to lose faith in his own brothers. But he *never* lost faith in God. His wonderful industry, and his rare gift of generalship, soon made themselves known. His faithfulness over even any *little* trust that was put in his care was remarkable; and it called forth admiration and esteem from every one. His very purity of mind and thought made him a mark for the evil-designing. No doubt they thought it would be a smart thing to get that pure-minded Hebrew to commit sin and crime as they did; but they utterly *failed*, no matter on which side the fiery darts of the evil one were made to strike him. "No," said the boy, "my master has trusted me implicitly. He has turned over to me almost every thing, and put it into my hand because of his confidence in me. Shall I betray that trust, and sin against him and in the sight of the great God above?" He did not say it out loud, but I imagine he said it within his own heart, "No—a thousand times no. God help me to *continue* saying, 'Get thee behind me, Satan.'" He came near losing his head, it is true, and just because of his unflinching devotion to right and truth; and were it not that there was and *is* a great God above, as Joseph believed, he doubtless *would* have lost his head. *God rules.* Joseph was put down lower than ever. He was placed in the companionship of criminals and murderers; but his fidelity and wonderful industry kept coming uppermost. May be he sat down in sorrow and grief for just a little while to think that he should suffer all that because he refused to do wrong. I do not think he did very long, however. I can imagine that pretty soon he gazed about in the darkness of his dungeon, and spied an old broom. He went to slicking up an putting things to rights. The keeper was surprised. He had never met such a prisoner before. It was an easy matter for him to let Joseph take charge of the prison. Joseph was a master hand at taking charge of *any* thing. I read in one of the papers of a poor woman who wanted work. She applied to an editor. He asked her what she could do. She said, "I can sweep; and if you will give me a broom I will sweep out your office, and slick it up in a way that it has not—at least for some time—been slicked up before." She was a women of education and intelligence. She was permitted to sweep the office. Pretty soon some of the help was sick; and when the question arose as to what *could* be done without the capable man who could no longer be at his post, she asked them to let her try. They had but little faith that the woman could fill such an important place, but were greatly surprised to see her show wonderful capabilities in that very line.

How many times I have seen that thing enacted! Somebody has been filling a humble position. Sickness or indifference, or something else, leaves an important post vacant. Now is the chance for the one who has been watching and waiting for promotion. Don't you see that outside circumstances can never keep a good man or woman down very long? and yet how often we hear the complaint, "I do not get my just dues; I never *did* get my just dues. The unscrupulous and forward are sure to crowd in ahead of me." Sometimes the one who grumbles, and finds fault with circumstances, has added, "In fact, there is no chance at all for an *honest* man in such a world as this." The latter is a point-blank untruth. It is just the *other* way. There is a *tremendous* chance every day and almost every*where* for those who are unflinching in their devotion to right and principle; but it is true that there is *not* a very good chance *any*where for one who is tricky and dishonest.

A man is harmed, as in the language of our text, by what he permits to come forth from his mouth. If he permits his mouth to frame trickery and deceit, it damages and injures him a thousand times more than any slander that may be started against him; for, as time passes, everybody will recognize that the slander against the innocent man is not true. It does not fit him at all. It is not *like* him. The thing which, however, he in an unguarded moment allows to escape his lips—the thing that he should *never* have permitted his lips to utter at all—is what kills, and pulls a man down. If such things are permitted to slip out once, they will again; and all along in this pathway of life these things will be noticed, and they mark and leave their *impress* on the character and on the mind. A great many strictures are uttered in regard to the "cold and unfeeling world." I believe good men have not found the world cold and unfeeling. There is evil in the world, it is true. There are vicious and evil-disposed persons; but they are being constantly held in check—at least they are in most neighborhoods and localities; and there is such a constant and unceasing clamor for men of strict integrity—that is, integrity coupled with energy, intelligence, and industry, that such people are constantly being wanted.

You have known people, doubtless, who rarely speak ill of absent ones. I once heard a young Christian say that it kept him so busy weeding out and correcting the sins that he constantly discovered in his own heart that he had not much time to dwell on the shortcomings of others. Oh what a wise saying was that! When Joseph, the Hebrew slave, was sent down into Egypt among the depraved heathen people, instead of meeting injustice and wrong he very soon found everybody ready to give place to him; and not only that, Pharaoh and all his subjects seemed quite willing to extend a helping hand, and invite him to step, even up to almost the highest place in the kingdom. He was asked to take a seat next to the throne occupied by the king himself; and it is so even now. Do not, I beg of you, dear friends, worry about what your *enemies* may do to spite you. In fact, you need not pay any attention to your enemies in that line at all; and, above every thing, do not think of waiting for a chance to "pay" them back. *Love* ye your enemies, do good to them that hate you. If you get into a fighting mood—and I do believe it is a grand good thing to get into such a mood sometimes—turn right about resolutely and fight the *sins* in your *own* heart. Fight the selfish feelings that continually bubble forth. Hold them in check. Fight *Satan*, *not* your neighbors. I suppose most of us now and then get into a fighting mood. We say, "I do not believe it is my duty to stand it any longer." There is one illustration I should like to give here; but I fear some of my own good neighbors may see it and feel hurt. I think, however, I will risk it after all; for the moral it carries is too good to be lost.

Some time last fall the cattle from a neighboring pasture had a fashion of getting through into my rich creek-bottom grounds. For a time we were puzzled to see how they got out of the pasture lot. It actually seemed as if the cows had learned to be sly enough to wait till everybody had gone to meeting, or till some time in the day when everybody was especially busy. Then these cows would be out of the pasture and in the garden; and it was hard to tell by what hook or crook they managed it. At length we discovered that they got through near the bridge, and then this was fixed up securely; but in a few days the cows were in again. Then it turned out that the iron cattle-guard on the railroad had been removed by the division boss, and a wooden one put in place of it. The cattle had, however, got a taste of the "garden sass," and they walked over the wooden cattle-guard, after very little practice. We remonstrated with the railroad company; but it was rumored that they were not paying expenses, and, in fact, the road had gone into the hands of a receiver, and there was no help for the trouble. The owner of the cows finally took them out of the pasture, and kept them in a stable. It was not very many days, however, before they were in the garden again, and a small boy was chasing them pell-mell over my soft ground, prepared with so much care. Finally winter came and ended the trouble fo rthe time being. The cows, however, had not forgotten a bit of their frolics through my stuff, even though they had not had a taste for months before. One beautiful day in May, when everybody was too busy to chase cows, or even to think of them, they were again running through my choice currants and gooseberries, and raising havoc as only cows can do. We then put them back into the pasture. The man had scarcely got to his work, however, before the cows were there again. He drove them out the second and *third* time; and while we were eating dinner a message came to me saying that the cows were holding "high carnival" *again* among my stuff. I asked the man who drove them out what the trouble was, and he said they walked right over the cattle-guard as fast as he drove them out. He said he spoke to the boss of the division gang, who was at work right near the crossing; but he only replied in a sarcastic way that the cows did not trouble *him* a particle—why should *they* look after them? I remember of thinking that the law was on my side, and that I would have damages. I mentally figured up that it was worth just about an even $—.00 for all the trouble, worry, and loss I had sustained. But a better voice suggested, "Oh, no, Mr. Root! You would not take $—.00 from your neighbors, who are hard-working farmers, nor from the man who owns the cows, nor even from the railroad company with all the bad luck they have had." I mentally decided that I should not feel easy to take this sum of their money; but I thought half would be little enough, surely. But conscience kept on, and it reminded me of Abraham when he was pleading for the Sodomites. When conscience had got me down to a very moderate sum I concluded it was too small an amount to make a fuss about. But I gave vent to a groan—it was a mental groan, no doubt—when I looked at the stuff and the cow-tracks in the soft mellow earth.

Now, the incidents as given above are all true—that is, they were true from *my* standpoint. Let me now give you the sequel. After dinner I jumped on my wheel, with a determination to have that cow nuisance abolished. If you will excuse me, I had rather not tell where I started to go first. The exhilaration of riding on the wheel brought out my better feelings, as it almost always does, and I whirled around and went down to the railroad depot. The agent was at dinner. The division boss—the very man who made fun of our sufferings from the cows—sat resting with his men near. I decided to commence very mildly, and I very soon learned that the man who owned the cows came to see them, and they promised to have a good iron cattle-guard put in before his cows would arrive at the pasture lot. And this *had* actually been done. But the cows had learned the trade so well with the old wooden one, they walked right over the new iron one, with only a little practice. Then I suggested digging a pit, as they usually do under a cattle-guard and offered to let my men do it. "Why, Mr. Root, that is what we wanted to do, and would have done it last fall; but there has been a law enacted recently, against digging any more pits under the cattle-guards." This was surprise No. 1 to me. He added further that he thought the superintendent of the road would let them dig one there *contrary* to law if *I* would send in my request. The telegraph instrument was clicking within a few feet of me, and I thought it very likely the pit could all be nicely made before night. But it would be simply digging a pit for my neighbor's cows to fall into; and conscience put in, "Mr. Root, you know that is not according to your profession." I replied as before, "No, no! I can not think of digging any pit."

I rode over to see my neighbor who owned the cows. His wife said he had just been told that the cows were annoying me, and that he jumped up from the dinner-table and went and got them, and put them back in the stable the minute he heard of it. That was surprise No. 2. Next day the neighbor who *owns the land* came up to me looking considerably anxious and worried. Said he:

"Mr. Root, I have always heard that you are a good-natured man; but I fully expected—in fact, I should not have blamed you a bit if you had done something besides *talk*, after all the annoyance you have had from these cows. I am thoroughly ashamed of myself; and I have just come to inquire if you have any thing that will do for posts, that you can sell us, so we can put up a wire fence along each side of the railroad, before night. I am very busy with my farmwork, and I tell you it seems as if I could *not* stop just now to put up that fence. But you are taking it so good-naturedly it makes me all the more determined that the pasture shall be fenced so you won't have any more anxiety or loss in that direction."

We delivered the posts for them, and in an hour or two he and his men were very busy making a substantial fence. You see, it really belonged to the railroad company to put a fence on each side of their track; but knowing the circumstances of the new road at just this period during the financial depression, without being told, we knew they could not very well do it. While they were at work at the fence it just occurred to me that I wanted a favor of my neighbor who owned the land. I had been thinking for years back of turning Champion Brook so as to run it into our carp-pond, and use it for irrigating the particularly rich creek-bottom ground where we raise our choice strawberry-plants. I told him my wishes; and almost before I got through he said, "Just go right on to our land and make any improvement you please, and take all the water you want." Now, friends, suppose I had sued him for damages on account of the cows. Would I have felt like asking him for permission to start a small irrigating canal right on his ground? Not much. Well, then I happened to think further, I wanted to run the irrigating canal (a small one) on the ground that belonged to the railroad company. As soon as I told them my wishes they said, like my neighbor, "Go ahead, Mr. Root, with what you have in mind. We know you well enough to know that you will never do any thing that will in any way injure or interfere with our property." Suppose I had commenced a suit against *them* for damages sustained by the cows stamping on my gooseberries.[*]

Now, I do not know this minute who would be legally responsible in such a case—the man who owned the cows, the neighbor who owned the pasture lot, or the combination of "neighbors" who own the railroad. I feel a little glad to think I have not even asked legal advice in regard to the matter; and, oh I am *so glad* I I did not say out loud to anybody (except to dear old GLEANINGS) that I was ever tempted to think of prosecuting anybody! And I am glad again that, instead of fighting any of these neighbors, I fought and successfully downed the spirit that prompted me to think of wanting money in the way of damages, through this whole transaction. Somebody might ask what the damage really was. Well, I suppose I might have got prejudiced witnesses to testify that, all things considered—no, no! I guess I will not say that. I will say this, however: I have seen farmers go to law and collect $50.00 damage because a drove of cows rambled all night through growing crops. A good lawyer would make it seem quite reasonable that about $50.00 would be about fair. But perhaps another good lawyer would make it equally plain that the owner of the corn did not sustain more than $5.00 damage, if he would take his hoe and spend a few hours in straightening up and fixing up the mischief done. You see, it depends a good deal upon how we look at things.

Now, in view of the above, let me ask you, dear friends, which it is that hurts a man—the damage he sustains from outside, or the permanent damage to *soul* and *body* that comes from letting words escape his mouth that never ought to have been allowed to slip out at all.

BOOK AGENTS, AGAIN.

Friend Root:—Don't you think you were rather hard on that book agent? Please understand I am not a book agent myself, and never expect to be; but, "every man to his calling." God did not endow us all alike. Some men can come right down to business, and others can not. Sometimes men appear too fast, which they should not do. That is scriptural. You should not blame him for wanting your name at the head of his list. I presume a great many men take a vast amount of your time in getting to the point. I look on my fellow-man as I do on the different churches. They are all treading the same road, and I can not object to any man calling so long as he keeps within the bounds of honor. You say he began to talk about spiritual things, and you did not say very much, implying that you did not wish to prolong his visit. Suppose some of your readers were to say, "I don't want to read Mr. Root's spiritual essays, for they are too long, and are a waste of time." Now, Bro. Root, *I* think they are too short. I do not think any thing tending to a spiritual point is a waste of time. You must not allow peddlers to fret and tempt you to be harsh. You must practice what you preach, or else we shall not know how to take you. G. W. REAMS.

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[*] Some may urge that there were peculiar circumstances connected with the case I have mentioned, and that it was "policy" for me to keep still and not make a fuss. Exactly; and I do not believe there is ever a neighborhood quarrel but that this same kind of policy exists. Any busy man is always likely to need favors of his neighbors; and it is not only policy to be *honest*, but it is also policy to practice and cultivate this little virtue that "suffereth long and is kind."

Franklin, Tenn., Apr. 18.

[Many thanks, good friend R., for your very kind criticism, as well as for your pleasant words at the conclusion. I confess that I myself felt a little uneasy about the outcome. Ernest has similar trials, and I submitted the matter to him. He said that, instead of showing the man the door, he thinks that he would have left the room himself. In fact, I have known him to do that. But I submit the question: Is it manly, and is it the right thing to do, to let a book agent drive you away from your own premises, or out of your own home? In regard to spiritual matters, I fear, my friend, you do not quite understand me. I am always willing to talk with anybody on spiritual matters when my *assistance* is needed. But this man had made an appointment, and I became suspicious because he *would not* come to the point in regard to said appointment. His spiritual talk was "put on." I very soon decided it was simply a cloak to win my favor. In regard to wanting my name, I do not want people to buy things because *I* have bought them. An agent for some agricultural machine tried to make T. B. Terry a present of said machine, that he might tell people around that he had sold one to Terry. Friend Terry very properly refused to take it. Then the agent wanted to sell him one for a small part of its price, thinking this would overcome Terry's objection, for he could then truthfully say he had sold such a machine to Terry. Now, here is an example for all of us. Friend Terry declared he would not have the machine at all unless at full price or full wholesale price, and then he could with a clear conscience speak of its good points as well as of its poor ones. I have again and again refused to accept books—that is, where the agent was to have the privilege of putting my name on his list of *purchasers*. A book agent recently came on our premises, *without permission*, and sold a book at an enormous price to several of our employes who ought to have used their money for paying their honest debts instead of buying an expensive book. He talked them into it when they ought not to have bought it, and some of them owned this up to me afterward. But the real important point was the last one. Why could he not have given me his promise that he would hereafter carry his book in his hand, and tell people *his business* before he caused them to waste time, as in my case? If it be true, that public opinion is such that it will not do for a *book agent* to tell people what his business is at the outset, then I think no real lady or gentleman would undertake such an occupation if it could be very well helped.]

SOMETHING ON THE OTHER SIDE.

I think, Bro. Root, courtesy is a very good thing, but altogether out of place when applied to *that* book agent. I would suggest that the next one of that sort that comes along, you show him the door, and, at the same time, help his exit. He will understand that; the other, he will never understand. It will save you a world of trouble, and teach him a lesson he will never learn in any other way. It is time to call a halt in this misdirected sympathy and forbearance toward such people. "Don't cast pearls before swine." For the special benefit of book agents I've been thinking of raising a couple of good dogs—brisk lively fellows.

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I keep in stock a full line of E. Kretchmer's make of Hives, Sections, and other supplies needed in the apiary, at very low prices. Also Italian bees and queens for sale. **A. W. SWAN, Centralia, Kan.**

World's Fair Medal

Awarded my *Foundation.* Send for *free samples.* Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free* Illustrated Price List of every thing needed in the apiary.
Bell Branch, Mich. **M. H. Hunt.**

Good! Good!

Those wishing the finest and best business bees, both for pleasure and profit, should know that Jennie Atchley is headquarters for such queens. I breed both the 3 and 5 banded strains, at the following prices: Untested (March, April, and May), $1.00 each; $5.00 for 6, or $9.00 per dozen. June till October, 75 cts. each; $4.25 for 6, or $8.00 per dozen. I breed my queens in separate yards, and I have as fine Italian bees as there are anywhere. Nuclei and full colonies. I have one straight merchandise rate on bees by express—lowest in U. S. Fine breeders always on hand; 3-banded, $5.00; for straight 5-banded breeders, apply by letter. Also bees by the pound. I guarantee *all* my queens to be good and serviceable, and my fine faultless breeders unexcelled in the world. Safe arrival and satisfaction.

I also have a carload of A. I. Root's Dovetailed hives and Bee-supplies to accommodate my Southern customers. Dadant's foundation and Bingham smokers. Send for catalogue.

JENNIE ATCHLEY, Beeville, Bee Co., Texas.

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my ***Golden Italians.*** They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. ***Sections, $2. per M.*** Dovetailed hives way down.

CHAS. D. DUVALL, Spencerville, Md.

Sections Cheap.

We have on hand the following stock of ***choice white*** 4-piece dovetailed sections, which we offer at $1.00 per thousand:

75000 4¼x2, open top and bottom.
25000 4¼x1⅞, " "
4000 4¼x1 13/16, " "
4000 4¼x1 15/16, " "

G. B. LEWIS CO., Watertown, Wis.

FREE! My price list of pure Italian bees and queens, and white and brown ferrets. Address

N. A. KNAPP,
Rochester, Lorain Co., O.

BEE-MEN, Get free Price List of Apiarian Supplies.
F. N. JOHNSON, Knoxville, Ill.

The Triumph Incubator,

Manufactured by Ed. W. Cole, Kenton, O., is the cheapest and best. Eggs for hatching, from stock which won nearly 300 premiums the past year.
Send for Description and prices.

Golden Wyandottes.

No better birds in America. Cockerel, $5.00. Trio, $7.00. Eggs, $2.00 per setting.
E. D. Keeney, Arcade, N. Y.

BBB'S!

If you keep ***BEES,*** subscribe for the **Progressive Bee-keeper**, a journal devoted to Bees, Honey, and kindred industries. ***50 cts. per year.*** Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address
LEAHY MFG. CO., HIGGINSVILLE, MO.

☞In responding to this advertisement mention GLEANINGS.

WARRANTED QUEENS.

Why buy *untested* queens and take your own risk of pure mating, when I warrant every one of my queens to be purely mated? Look over the ads. and see how few *dare* do this. Warranted Golden Italian queen, $1.00; six for $5.00, ready about May 1st. Safe arrival and satisfaction guaranteed.

S. F. TREGO, Swedona, Illinois.

☞In responding to this advertisement mention GLEANINGS.

SIX LEADING VARIETIES OF POULTRY. **EGGS FOR HATCHING.**
Orders booked now. Send for descriptive card.
J. S. Mason, Medina, Ohio.

GOLDEN QUEENS From Texas.

My bees can not be surpassed for business, beauty, and gentleness. Safe arrival and satisfaction guaranteed. Untested queens—March, April, and May—$1 each. ***150*** fine Tested Queens for early orders, $1.50 each. Order early. Send for price list.

J. D. GIVENS, Box 3, Lisbon, Tex.

Seeds Free! ALSO Freeman Potatoes.

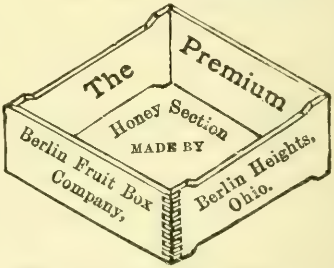
YOU CAN HAVE SUCCESS

in Bee Culture a Whole Year; 10 strong eyes of Freeman Potatoes (pure), and 10 packets of flower and vegetable seeds, for **40 CENTS,** silver. This offer is made to boom our circulation.

BURTON L. SAGE, Highwood, Conn.

Daughters of one of ***Doolittle's very best*** golden five-banded breeders, mated to the very choicest drones from ***Jennie Atchley's*** 5-banded strain, thereby securing a direct cross with the best 5 banded stock obtainable. My aim is to rear nothing but the best, regardless of cost. Untested, 75c; ½ dozen, $4.25; dozen, $8.00. Safe delivery and satisfaction. Money-order office, Monongah. P. O. address, Worthington, W. Va. Queens ready May 25. ***L. H. Robey.***

Eggs Brown and White Leghorn, $1.25. P. Rock, Bl'k Minorca, $1.50. Bl'k Langshan, L't Brahma, Pit Game, Buff Cochin, $2.00 per 13. Fowls for sale. Circular free.
Address **GEER BROS., St. Marys, Mo.,**
or, H. B. GEER, Nashville, Tenn.



Send for our new price list of Bee supplies and Fruit packages. A liberal discount allowed on winter orders. Address
BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.
1-10d

☞In responding to this advertisement mention GLEANINGS.

GEO. W. HUFSTEDLER,

Breeder of 5-Banded Italian Bees and Queens.
Untested, 75 cts. Tested, $1.00 each.
CLARKSVILLE, RED RIVER CO., TEXAS.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,
12tfdb **Sol Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb **New London, Wis**

SPECIAL NOTICES FROM BUSINESS MANAGER

Boards to put in your plant-garden, like the ones described on page 430, postpaid by mail, 15 cts.; if shipped by express or freight with other goods, 10c.

PRICE OF BEESWAX AND COMB FOUNDATION.

Since our last we have secured a large lot of choice yellow wax and had other lots offered us so there is little probability now of a further advance in price of either wax or foundation. In fact, we mark the price of wax down 1c per lb. from that quoted in last issue, and quote 24c cash, and 27c trade for average wax delivered here.

GLOBE LAWN-MOWERS.

We quote a reduction of 50 cts. each on the prices of lawn-mowers given in our catalog, on page 50, to our readers and their friends. There is no better cheap mower made than the Globe. We have had one in use on our lawn for five years, and it runs easy and does splendid work. With above reduction the prices will be, for 10-inch, $3.50; 12-in., $3.75.; 14 in., $4.00; 16 in., $4.25; 18-in., $4.50. See advertisement on cover page.

CARLOAD ORDERS.

As we go to press we are loading a car of supplies for Jos. Nysewander, Des Moines, Iowa; another for Barteldes & Co., of Denver, Col., and a third for W. K. Ball, of Reno, Nev. Smaller orders do not abate, and we are running factory over time to keep pace with them. We are not much behind as yet, and we don't mean to be if we can avoid it. Our extra polished sections are deservedly popular, and going out at the rate of a million a month or faster, and our comb foundation is being ordered at the rate of a ton a week.

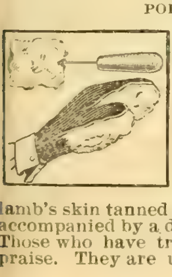
JAPANESE BUCKWHEAT.

Our call for seed in last issue has not brought us a single response as yet. To supply orders at all we are obliged to pay a seed-dealer $1.20 per bushel, as well as for bags and freight, making it cost us about $1.50 per bushel. We can not, therefore, supply any more at our catalog price unless we get track of a lot of seed at a lower price. If any of our readers far or near have any seed to sell, or know of any, we should be pleased to hear from you, naming quantity you have, and price you ask. Mail sample at same time. Until further notice our selling price will be, 1 peck, 50c; ½ bush., 85c.; 1 bush., $1.50; 2 bush., $3.00.

SPECIAL SECTIONS AT SPECIAL PRICES.

Of the special sections mentioned in former issues we can still supply the following: 2-in. cream, or No. 2, open four sides, at $1.50 per 1000; also a few 2-in. cream, or No. 2, open top and bottom, at same price. All other cream sections are oversold. Of old stock, No. 1 white, we have 1$\frac{15}{16}$, open 2 and 4 sides; 1$\frac{13}{16}$, open 1 and 2 sides; 1¾, open 1, 2, and 4 sides; 7 to ft., open 1 and 2 sides; 1⅝, open 2 sides; and 1½-in., open 2 and 4 sides; all 4¼x4¼. Our price for these is $2.50 per 1000; $4.50 for 2000; $6.50 for 3000, or $10.00 for 5000. We still have the most of the larger sizes given in former lists, at $3.00 per 1000, or $1 50 for 500.

POLISHING-MITTEN.



There are very few housekeepers who do not have a stove to black, and many take pride in making it shine. One of the best implements for this purpose is the polishing-mitten shown herewith. This is a woman's invention, and a good one too, as you might know. It consists of a mitten of oilcloth, faced with sheep or lamb's skin tanned with the wool on. The mitten is accompanied by a dauber, also of wool on the hide. Those who have tried the mitten are loud in its praise. They are usually sold for 35 cts. postpaid. We can furnish them for 25 cts. postpaid, or 20 cts. with other goods, not postpaid.

SLICED WOOD SEPARATORS.

Since we have been furnishing sawed wood separators there has been a much smaller demand for the sliced ones, which, though not as straight and durable and nice to use as the sawed ones, yet answer a good purpose. Many prefer to use them but once, and then throw them away. We have quite a large stock of the following sizes, which we offer at reduced prices to move them off:

3½x17 and 17¼ in. at 20c per 100, $1.50 per 1000.

3½x18, or any length we can make by cutting off these lengths, 25c per 100, $1.75 per 1000.

4½x17, slotted both sides, 30c per 100, $2.00 per 1000.

4½x18, slotted both sides, 35c per 100, $2.50 per 1000.

4½x18, slotted both sides, and slightly colored or mildewed, 25c per 100, $2.00 per 1000.

WORLD'S FAIR AWARD.

The following is a copy of official award, just received from John Boyd Thacher, Chairman Executive Committee on Awards:

"Variety of articles manufactured by the exhibitor for the use of bee-keepers; the ingenuity and practical utility indicated by the exhibit, which comprised boxes for transportation of bees; queen-cage; queen-cell protector; swarm-catcher; zinc honey-board; Novice honey-extractor; Porter bee-escape; honey-knife; bee-feeder; solar wax-extractor; comb-foundation machines; comb foundation for surplus; comb foundation for brood; comb-foundation fastener; dovetailed bee-hives; chaff hive; dovetailed supers; T supers; section honey-boxes; honey shipping-cases; saw-mandrels.

"*Crane's Bee-smokers.*—Highest commendation for ingenious construction and high efficiency.

"*Cowan's Rapid Reversible Extractor.* Simplicity of design, excellence of construction, and ease and rapidity of operation."

Notice that, while the general line of supplies receives award for ingenuity and practical utility, the Crane smoker and Cowan extractor receive special commendation. See ad't of these two specialties on another page.

POTATOES FOR LATE PLANTING.

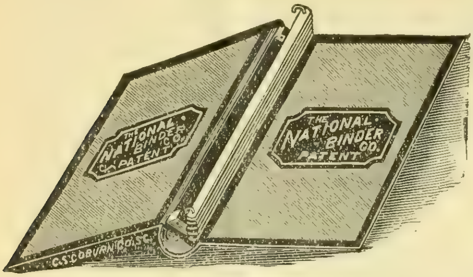
We have still on hand about 40 bushels of Freeman potatoes, and perhaps 150 of the Monroe Seedlings—all in good condition. Now, please note, the secret of these Monroe Seedlings keeping so nicely is, that they were planted in June; and even though not planted till then they gave a crop of over 1900 bushels from 9 acres, and they were not troubled with either bugs or blight. If you want to try your hand at late planting you can have the Monroe Seedlings at $1.00 per bushel or $2.50 per barrel, and the Freemans at just twice that amount. As good eating potatoes are now scarce and high, the Monroe Seedlings are, in many localities, the cheapest *good* potatoes that you can get for table use.

VEGETABLE-PLANTS MAY 15.

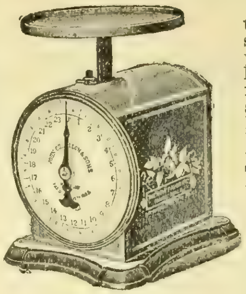
We now have a splendid stock of vegetable-plants of all kinds—beautiful cauliflower; and, in fact, we are now putting on the market the handsomest cauliflower I ever saw. Every head seems to be perfect. This may be owing to the fact that they were grown and matured during the cool spring weather. I think, however, much of it is due to the excellent quality of the seed that friend March is giving us. We have also onion-plants in great abundance—nice ones—especially Yellow Danvers and Prizetaker. Tomato-plants, we are once more short of. This year we had an unusually large number of twice transplanted, set out the last time with an extra amount of room. When these began to blossom we offered them at 5 cts. each, or 40 cts. for 10; and to my astonishment almost everybody took the great big plants. We take up a good lot of dirt with each plant, and give them an old basket to carry them in. I mention this as a hint to plant-growers. We have a beautiful lot of celery-plants—White Plume, Self-blanching, Golden Dwarf and New Rose, and shall have Giant Paschal later. We have also a nice stock of pepper-plants—Bullnose, Cayenne, Spanish, and Ruby; Sweet-potato plants in great quantity; also Southern Queen and Bermuda Red yams.

GLEANINGS BINDERS.

As promised in a recent issue we present a cut of the binder we have adopted for Gleanings. It has a half-oval block of wood bound into the back so that it shows in the case as a full volume, whether it has one or more numbers in it. You notice there are 24 steel strips, one for each number in the volume. Each number is slipped over a strip, as it comes to hand, in a moment's time, without mutilation; and any number can be removed and replaced instantly without disturbing the rest. They are neatly lettered in gold-leaf, "Gleanings in Bee Culture" on the front side and on the back. We have them all cloth or with leather back and corners. Price, all cloth, 65 cents each. Cloth and leather, 75 cents each. By mail, 17 cents extra for postage.


THE NATIONAL BINDER CO. PATENT
THE NATIONAL BINDER CO. PATENT
C. S. COBURN CO. SC.

NEW FAVORITE FAMILY SCALES.



The manufacturers of the Favorite Family scale have recently improved this convenient household article by making the case of sheet steel instead of cast iron. Either size, 12 or 24 lb., boxed for shipment, weighs now only 5 lbs. The adjoining cut shows the scale. You notice, right under the platform is a screw. By turning this screw you can take off the tare for any vessel placed on the scale, bringing the pointer to 0. Price, 12-lb., $2.25; 24-lb., $2.50.

CONVENTION NOTICES.

There will be a meeting of the Southeastern Kansas Bee-keepers' Association held June 15, 16, '94, at the apiaries of J. C. Balch, seven miles south of Bronson, Kan. All are respectfully invited. J. C. Balch, Sec.

Golden Queens from Tennessee.

Our stock is better than ever before. We will rear only the Golden Italians this season. Have a few 3 banded tested that we will sell cheap. Golden tested, $1.50; select tested, $2.50; extra select tested, $4.00; 3-banded tested, $1.00. Untested, $1.00.

STEWART BROS., Sparta, Tenn.

EGGS For Hatching. S. C. B. Leghorns, Silver Wyandottes, B. and W. Minorcas, P. Rocks, Langshans, $1.00 per 13; Y. Wyandottes, I. Games, Red Caps, S. S. Hamburgs—Eggs, $2.00 per 13. No circular. AUGUST GOETZE & SON.
3822 WOOD ST., WHEELING, W. VA.
Please mention this paper.

THE BURTIS, PATTERSON, SARGENT COMPANY
BPS PAINTS
CLEVELAND, OHIO.

ECONOMY IN PAINTING
DEPENDS UPON THE
Durability and Covering Power

of the paint used. A paint made of ***White Lead, Zinc,*** and ***Pure Linseed Oil,*** thoroughly mixed and finely ground by powerful machinery must be more durable and have greater covering power than a paint stirred up by hand with a stick.

B. P. S. PAINTS ARE MADE TO WEAR,

and one gallon will cover over 300 sq. ft. of average surface two coats. It is fully guaranteed by our agents, and a trial will convince you that it is the

Best Paint Sold.

13 Carloads of Supplies. This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially **FOR THE WEST.**

Joseph Nysewander, Des Moines, Ia.

DOVETAILED HIVES, SIMPLICITY HIVES,
SECTIONS, EXTRACTORS, ETC.
FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb
J. M. JENKINS, WETUMPKA, ALABAMA.
☞ In responding to this advertisement mention Gleanings.

COMB FOUNDATION.

Made by an

IMPROVED PROCESS ON NEW AND IMPROVED MACHINES

of my own invention, which enables me to produce

The Cheapest.

Prices on 5 lbs. or more will range from 35 to 50c per lb. Send for prices and samples.

W. J. FINCH, JR.,
931 E. Monroe St., Springfield, Illinois.

☞In responding to this advertisement mention GLEANINGS.

Look Here, Bee-keeper!

If you are in need of some bee-supplies, write for catalogue and price list. Every thing sold as cheap as the cheapest. **W. E. Smith.**
Kenton, Hardin Co., O.

WILLIAM HEASTMAN, CITRA, FLA.,

Breeder of the celebrated "Orange-blossom" Italian Bees and Queens. Untested, 75 cts.

Bees and Queens.

Select tested queens, from imported mother, $1.50 each; untested, 90 cts. each; 2-frame nucleus, with untested queen from imported mother, both frames containing brood and all adhering bees, $2.00. Bees by the pound, 90 cts. Satisfaction guaranteed. Will be ready to ship May 15. **MRS. A. F. PROPER, Portland, Jay Co., Ind.**

5000 Golden Queens in 1894.

1 untested queen by mail	$1 00
6 untested queens by mail	5.00
1 2-frame nucleus	2 75
2 2-frame nuclei	5 00

Untested queens with nucleus. Satisfaction in all cases. Send for sample of bees.

J. F. MICHAEL, German, Darke Co., O.

Attention! Bees for Sale.

Full colonies and nuclei. Good stock; Langstroth frames. Write for prices. *H. Lathrop,* Browntown, Green Co., Wis.

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds
W. Atlee Burpee & Co., Philadelphia, Pa

WE WILL PREPAY

Freight charges on orders for Root's polished sections, and 16-section white basswood shipping-cases, at his prices, to be shipped from factory to points within 300 miles, in lots of 5000 and 200 or over respectively. Send for catalog.
B. WALKER, Evart, Mich.

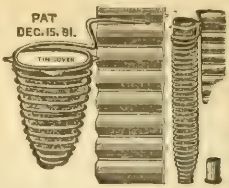
MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

Control Your Swarms, Requeen, &c.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. 12 Cell-protectors, 60c; 100, $3. 12 Cages, 60c; 100, $5, by mail. Circular free. Address **N. D. WEST, Middleburgh, Scho. Co., N. Y.** Sold also by all the leading supply-dealers.

I have one of the choicest flocks of

Brown Leghorns in the State.

Keep no other kind. Eggs, 75c per 15; $1.25 per 30.
B. G. SCOTHAN, Rogersville, Mich.

BEES

40 Colonies Italians, $4.50
Hybrids, $4.00 per colony. Packed ready to ship in a new Dovetailed hive; 8 good worker combs.
J. B. McCORMICK, Fredericksburg, Ohio.

Italian Bees and Queens

Ready in May. Queens, $1.00; bees by the lb., $1.00; 1-frame nucleus, $1.25; 2-frame, $2.25. Also Barred P. R. eggs for setting, 15 for $1.00.
Mrs. A. A. Simpson, Swarts, Pa.

For Cash.

Pure light-colored Italian queens in April, May, and June. One untested, $1.50; ½ dozen, $5.00; per dozen, $9.00. Tested queens, $1.50 each. Select tested. $2.00. Guarantee safe arrival. Address
D. E. ALDERMAN, Clinton, Sampson Co., N. C.

Locust-Trees for Sale.

Very valuable for shade and timber. Also a great honey-producing tree. Blows very fragrant. Trees from 3 to 5 feet high, 30 cts. each; 25 cts. each per 100.

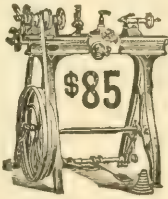
W. J. Hillman, Green River, Vt.

ITALIAN QUEENS,

At prices that will surprise you when you have seen the stock. Nothing but the purest Italians (Imported and Golden) in the apiary. Tested Queens, $1.00 each. Untested, 75 cts; $8.00 per doz. Orders filled by return mail. Safe arrival and satisfaction guaranteed.
J. W. K. SHAW & CO., LOREAUVILLE (Iberia Par.), LA.

ITALIAN QUEENS.

Both three and five banded. Tested, $1.50; three for $4.00. Extra select breeders, $2.00; three for $5.00. Untested, $1.00; three for $2.50; six for $5.00; twelve, for $8.00. Safe arrival guaranteed or money refunded. Orders booked now, and pay when you want queens. *C. F. BECKEY, MANITOU BEACH, LEN. CO., MICH.*



"Star" Foot Lathe Swings 9x25 in.

Screw Cutting Automatic Cross Feed, etc.

LATHE

Scroll Saws, Circular Saws, Lathes Mortisers.

Catalogue Free of all our Machinery.

Seneca Falls Mfg. Co. 44 Water St., Seneca Falls, N.Y.

☞In responding to this advertisement mention GLEANINGS.

New Cowan Reversible Extractor

Is now indorsed by the best and most extensive bee-keepers of the country. . . . . .

Some of its Features are:

Reversing Without Stopping.

Can be done by simply slowing up the motion.

Gear Beveled.

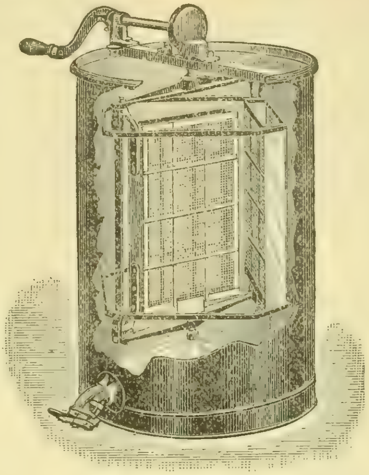
Strong and well made, and operated by a good substantial handle.

Milk-can Handles

are attached to the can.

Two Coats

of carriage black, and neatly lettered.



Can of heavy XX Tin

for 2-frame; four and six frame of galvanized iron.

Bottom

of improved type.

Honey-gate

is of a new pattern and of ample capacity, and malleable-iron handle.

Reversing Pockets

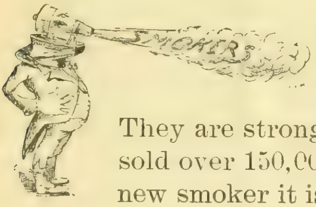
braced stronger than ever, and guaranteed not to bulge.

Gear and Reversible Pockets

easily removed by taking out four screws.

Two-frame extractor, L. size, $10.00; four-frame, L. size, $20.00; six-frame, L. size, $26.00. The four and six frame extractors also reversed without stopping. 52-page catalog of Bee-keepers' Supplies free.

A. I. ROOT, Medina, Ohio.



Strength of Blast . . . . . .

is not the only good feature of the Smokers we manufacture. They are strong, and well made. Of the **Clark Cold-Blast** we have sold over 150,000; and the **Crane Hot-Blast**—well, although it is a new smoker it is taking like "hot cakes." . . . .

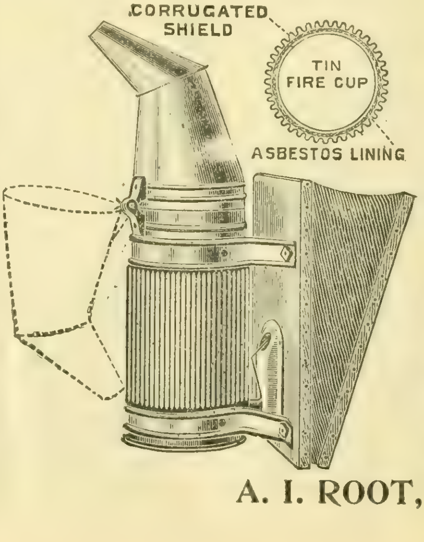
The new '94 model Crane is a beauty; and among some of its distinguishing features are an improved

Check-Valve,

a device that forces the air through the cup, even when crammed with fuel, and at the same time prevents smoke from going into the bellows; a

Hinged Top

secured by a malleable-iron hinge accurately milled at the joint so that the top will fly squarely in place. No need of burning fingers in replenishing, nor losing the top off.



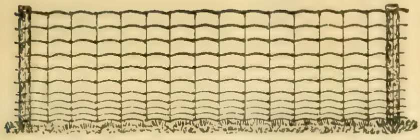
The Lining

this year consists of asbestos sheeting around the outside of the fire-cup; and over this still is a neat corrugated shield This combination is the most effective of any thing we have ever tried. And last, but not least, the cup is secured by four small BOLTS, not screws.

Price of Crane Smoker, each in a neat telescope pasteboard box, $1.60; or prepaid, $1.95. Dealers, write for wholesale prices

N. B.—We are the authorized manufacturers.

A. I. ROOT, Medina, Ohio.



A New Broom Sweeps Clean.

Any kind of wire fence looks nicely when first put up, and it will usually turn stock while new and tight. Whether it will continue to look well and do good service for any length of time, depends almost wholly on its **elasticity.** The **PAGE** is practically the only elastic fence on the market, the only **master** of contraction and expansion, therefore the safest to buy and use.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich

☞In responding to this advertisement mention GLEANINGS.

BEE SUPPLIES RETAIL AND WHOLESALE

Every thing used in the *Apiary.* Greatest variety and *largest* stock in the West. New catalog, 70 illustrated pages, free.

Discounts to Dealers.

E. KRETCHMER, Red Oak, Ia.

WALTER S. POUDER,

162 Mass. Ave. Indianapolis, Ind.

SUPPLIES Standard Goods—Popular Prices—Catalogue Free.

"BUSY BEES"

A book telling how to manage them—10 cts. in stamps; or free to those sending names of 5 bee-keepers

---

BEE SUPPLIES!

send for free copy of **ILLUSTRATED CATALOGUE,** describing every thing useful to a **BEE-KEEPER.** Address

T. G. Newman, 147 So. Western Ave., **Chicago.**

SECTIONS CHEAP!

Until sold, we will sell the sections listed below in quantities of 500 or more at $1.50 per thousand for creams, and $1.00 per thousand for No. 2. All 4¼ x 4¼ sections, open two sides.

41,000 2 inch cream.
47,000 1¾ " "
116,000 1⅞ " "
134,000 7 to ft. "

37,000 2 inch No. 2.
91,000 $1\frac{15}{16}$ " "
20,000 1⅞ " "
87,000 $1\frac{13}{16}$ " "

253,000 7 to ft. No. 2.

PAGE & KEITH, NEW LONDON, WIS.

☞In responding to this advertisement mention GLEANINGS.

BEES QUEENS

Smokers, Sections,
Comb Foundation,
And all Apiairan Supplies cheap. Send for FREE atalogue.

E. T. FLANAGAN, Belleville, Ill.

Those Silver-Gray Carniolan Bees.

I have a queen-rearing yard 5 miles from other bees, where I will rear those beautiful gentle Carniolan queens, at $1.00 each (untested); $5.00 for 6, or $9.00 per dozen. Send in your orders and see how soon I can send the queens. Safe arrival and satisfaction guaranteed. **Miss Amanda Atchley,**
Beeville, Bee Co., Texas.

Manum's

Leather = Colored Italian Queens

Are in the lead the world over. Tested queens one dollar each. Descriptive catalogues free to all applicants.

Also wood screws $\frac{3}{16}$ longer than formerly; otherwise the same. Price $9.00 per 1000 by express; $1.00 per 100 by mail. Taps, $1.15 each.

A. E. Manum,

Bristol, = = = = Vermont.

☞In responding to this advertisement mention GLEANINGS

Root's Goods at Root's Prices.

We have the best shipping-facilities in the Northwest. We can save time and freight by shipping direct on some 40 or more railroads, without change of cars, which saves handling, and goods are much less liable to be broken or smashed.

Root's 1893 No. 1 white sections, 4¼x4¼x7 to foot, 1⅞, and $1\frac{15}{16}$, at $2.50 per 1000. No. 1 cream, 4¼x¼x1⅞ and $1\frac{15}{16}$, $2.00 per 1000.

Write for price list and what you want.

H. G. Acklin, 1024 Mississippi St.,
St. Paul, Minn.

Northwestern Agent for A. I. Root's Bee-keepers' Supplies.

Cash for Beeswax!

Will pay 24c per lb. cash, or 27c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 32c per lb., or 33c for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box,* and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

FULL LINE OF

BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

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Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Situation in apiary for the coming season. A. T. BALL, South Sebec, Maine.

WANTED. To exchange several good safety bicycles. Honey wanted. Send sample. J. A. GREEN, Ottawa, Ill.

WANTED —To exchange 200 colonies of bees for any thing useful on plantation. ANTHONY OPP, Helena, Ark.

WANTED.—To exchange Root's goods, at his prices, to be shipped from here or factory, for white comb honey (crop of '94 preferred) in quantity lots. See ad. in another column. B. WALKER, Evart, Mich.

WANTED.—To exchange a good 6-inch Vandervort foundation-mill or 1000 and less of empty L. brood combs, A No. 1, for offers. JNO. NEBEL & SON, High Hill, Mo.

WANTED.—To exchange one Columbia Safety bicycle for any thing I can use; also have for exchange 300 division-boards, and 100 break-joint honey-boards for 8-frame L. hive. Want beeswax. F. H. MCFARLAND, Hyde Park, Vt.

WANTED.—To exchange for honey one Novice extractor. H. BENNETT, Union Furnace, O.

WANTED.—24 *young* untested Italian queens, June 10th. Please address, with rock-bottom price, W. L. COGGSHALL, West Groton, Tompkins Co., N. Y.

WANTED.—At once, a lady capable of doing general housework, neat, and kind to children. Address ELIAS FOX, Hillsboro, Wis.

WANTED.—To exchange Italian bees and queens for Safety bicycle or offers. C. A. JOHENNING, Highland Springs, Va.

WANTED.—To exchange one 5x8 Favorite Photo Outfit for any thing I can use. What have you to offer? G. J. STURM, Mt. Erie, Ill.

WANTED.—To exchange full colonies and 4 and 5 frame nuclei, for hammer and hammerless guns and gold watches All Italians on L. frames. Address L. WERNER, Edwardsville, Ill.

WANTED.—To exchange a good paying business in a live railroad town, for a good farm or offers. A bargain; for particulars address CARE P. M., No. 444, Steeleville, Ill.

WANTED.—To exchange 20 second-hand chaff hives, for a good second-hand Safety bicycle. J. G. TOWNSEND, 31 Linden Ave., Jamestown, N. Y.

IF YOU WANT BEES

That will just "roll" in the honey, try

MOORE'S STRAIN OF ITALIANS,

The result of 15 years' careful breeding.

Mr. Sam. King, Raleigh, N. C., referring to a queen purchased of me last season, says:

"I received queen June 1; introduced her on four frames in the Simplicity hive; filled out with frames of foundation. Honey taken by July 8, 155 lbs.; honey taken in Sept., 197 lbs., and had plenty to winter on. I never saw such workers; have bees from 20 breeders."

Warranted queens, $1.00 each; 3 for $2.50. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 666 queens. Circular free. eitf

J. P. MOORE, Morgan, Pendleton Co., Ky.

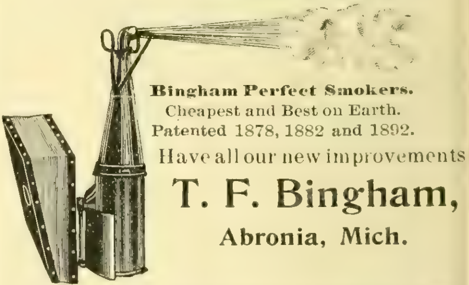
☞In responding to this advertisement mention GLEANINGS.

CALIFORNIA Tested Italian queens, $1.50 each to any part of U. S. or Canada; elsewhere, $2.00. **W. A. Pryal,** North Temescal, near San Francisco, Cal.

Hives for Sale. Having gone out of the farming business, I have 12 Chautauqua and 16 chaff hives, all new, for sale at half the cost of new ones. **J. G. Townsend,**
31 Linden Ave., Jamestown, N. Y.

Imported **Carniolans**, bred in 1893, $5 each; tested 1894 Carniolans in June, $2; bred from imported queens producing only gray bees. Untested, May, $1. Foreign orders, $6, $3, and $2. Safe arrival at any postoffice in the world.
MRS. FRANK BENTON, Charlton Heights, Md.

Special Offer. *100* 2-frame nuclei, with warranted queen, at $1 5 each. Queens, untested, 75 cts.; ½ dozen, $4.00; tested, $1.50; breeding-queens, $3.00. We guarante satisfaction. **LEININGER BROS., Fort Jennings, O.**



Bingham Perfect Smokers.
Cheapest and Best on Earth.
Patented 1878, 1882 and 1892.
Have all our new improvements
T. F. Bingham,
Abronia, Mich.

☞In responding to this advertisement mention GLEANINGS

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below first insertion free of charge. After the first, 10 cents per line We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have 50 more black, hybrid, and mismated queens at 30c each. H. L. WEEMS, Hanford, Cal.

CIRCULARS RECEIVED.

We have lately received circulars from the following parties:
Hayck Bros., Quincy, Ill.
J F. Michael, German, O.
A. C Tyrrell, Madison Neb.
W. T. Lewis, Lewisburgh, Miss.
J. D. Goodrich, East Hardwick, Vt.
B. Davidson, Uxbridge Ont., Canada.
J. H. M. Cook, 78 Barclay St., New York.

HONEY COLUMN.

CITY MARKETS.

Buffalo.—*Honey.*—The honey market remains unchanged; fancy, 13@14; choice, 11@12; common and broken lots, 8@9. The trade for the past week has been exceedingly quiet, and still a liberal amount of stock on hand.

BATTERSON & Co.,
May 18. Buffalo, N. Y.

Chicago.—*Honey.*—Few lots of comb honey on sale, and prices 14@15 for choice. Some dark lots selling at 6, 7, and 8. Extracted very quiet, and no interest is taken in reports from California that the crop will be light, so for the present the advance is confined west of the Rockies. Beeswax, 25.

R. A. BURNETT & Co.,
May 18. 163 So. Water St., Chicago, Ill.

Kansas City.—*Honey.*—The demand for comb and extracted is light. Supply of comb not large. We quote No. 1 white 1-lb. comb, 14@15; No. 2, 12@13; No. 1 amber, 13@14; No. 2, 10@11. Extracted, 4½@7. Beeswax, 18@22.

CLEMONS, MASON & Co.,
May 19. Kansas City, Mo.

Cincinnati.—*Honey.*—Demand is very slow for extracted honey at 4@7. Prices of comb honey are only nominal at 12@14 for best white. Demand slow. There is a good demand for beeswax at 22@27 for good to choice yellow. Supply scant, and not enough arriving to supply our home trade.

CHAS. F. MUTH & SON,
May 21. Cincinnati, Ohio.

Cleveland.—*Honey.*—Demand on No. 1 honey is not as good as last week; prices have lowered somewhat. The market is well supplied. Beeswax selling at 25.

WILLIAMS BROS.,
May 18. 80 & 82 Broadway, Cleveland, O.

Kansas City.—*Honey.*—Fair demand for honey. Prices, comb, No. 1 white, 12½; No. 1 dark, 10; No. 2, 10. Extracted, 5@9. Beeswax, 20@22.

HAMBLIN & BEARSS,
May 21. Kansas City, Mo.

Detroit.—*Honey.*—Best white honey is selling slowly at 14@15; dark, 11@13. Slow and but little of any kind on commission now. Extracted, 7@8. Beeswax, 26@27.

M. H. HUNT,
May 21. Bell Branch, Mich.

Albany.—*Honey.*—We are entirely out of comb honey. Have quite a stock of extracted on hand, and it is selling very slowly at 5@7, according to quality.

CHAS. MCCULLOCH & Co.,
May 23. 393, 395, 397 Broadway, Albany, N. Y.

Boston.—*Honey.*—We quote you our honey market as follows; Comb, 12@14. Supply fair, demand ight. Very little call for extracted; prices, 5@7.

E. E. BLAKE & Co.,
Successors to Blake & Ripley,
May 7. Boston, Mass.

San Francisco.—*Honey.*—Honey remains firm, and the prospects of the coming crop have not improved. Stocks are light, and high prices are expected. To-day we quote extracted honey at 5½@6; omb, 9@11 for 1-lb. frames. Beeswax scarce at 24@6.

SCHACHT, LEMCKE & STEINER,
May 23. San Francisco, Cal.

New York.—*Honey.*—New crop Southern honey s arriving freely. The market is well supplied, and emand very light. We quote common grade at 50c er gallon; choice, 55@60. Beeswax is in good demand at 20@26.

HILDRETH BROS. & SEGELKEN,
May 25. 28 & 30 West Broadway, New York.

TESTED Italian queens, $1.00; untested, 65 cts.; select tested, $1.50. **C. H. STEWART, Sparta, Tenn.**

NOW IS YOUR CHANCE

o buy ***cheap.*** Bee-keepers' Supplies, hives, sec-
ons, fdn., etc. Write for price list. **ROOT'S GOODS.**
JOHN NEBEL & SON, High Hill, Mo.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

EDWIN ROBINSON. *W. M. GRAY.*

Robinson & Gray,

SUCCESSORS TO

B. F. Southwick & Co.,

Foreign and Domestic Fruits, Canned Goods.

47 & 48 South Market and 5 & 6 Chatham Streets.

Headquarters for Vermont Shipments of White-Clover Honey.

It will be the endeavor of the new firm to meet the wishes of their patrons in the future as the late firm has in the past.

Thanking you for the many past favors received by the late firm, we hope to be favored with a liberal share of your patronage in the future.

All orders and inquiries by mail or otherwise will receive prompt attention. Very respectfully,

Boston, April 2, 1894. **ROBINSON & GRAY.**

☞In responding to this advertisement mention GLEANINGS.

Bees and Supplies

Always on hand. Send for circular.

I. J. Stringham, 105 Park Place, N. Y.

HARDY

BUSINESS ✻ QUEENS.

Bee-keepers of the North, we can furnish you *now* with hardy bred queens of either the 5 banded Golden Italians, or Gray Carniolans. Our prices are very reasonable. Send for them before placing your orders. *Satisfaction guaranteed.* A complete description and price list free.

F. A. LOCKHART & CO., Lake George, N. Y.

Woodcliff A No. 1.

In order to introduce my strain of beautiful yellow ***Woodcliff Queens***, which are bred from an imported leather-colored Italian crossed with the best 5-banded stock I can procure by ***Doolittle*** method, I will sell a limited number only of untested queens at 75 cts. each. As I produce large quantities of comb honey, I breed principally for large honey-gatherers. Apiaries near Philadelphia. Address WM. A. SELSER, Wyncote, Pa.

Mother Bees.

If you wish the best of queens, or mother bees, send me your orders. Untested queens, 3 or 5 band, 75c each; $4.25 for 6, or $8.00 per dozen. Tested 3-band breeders, $1.50 each; fine 3-band breeders, thoroughly tested, the ***best***, $5.00 each; straight 5-band breeders, faultless queens, $10.00 each. Root's goods, Dadant's foundation, and Bingham smokers.

Jennie Atchley, Beeville, Bee Co., Tex.

Golden Queens from Tennessee.

Untested, 75 cts.; tested, $1.25; select tested, $2.00. 3-banded tested, $1.00; untested, 50 cts.

Stewart Bros., Sparta, Tenn.

5-Banded Bees in Iowa.

All my bees are bred with care by the most approved methods, and from the best 5 banded breeders that can be obtained, and positively can not be excelled for beauty, gentleness, and working qualities. Fifteen years' experience. Untested, 80 cts.; 6 for $4.25; 4 and 5 banded, $2.00; straight 5-banded on application. Satisfaction guaranteed.

J. E. HAND, Eldora, Ia.

TESTED

Queens are usually sold for $2.00 I will explain why I wish to sell a few at less than that. As most of my readers know, I requeen my apiary each spring with young

QUEENS

From the South. This is done to do away with swarming. If done early enough it is usually successful. It will be seen that the queens displaced by these young queens are never more than a year old; in fact, they are fine tested Italian queens, *right in their prime;* yet, in order that they may move off quickly, and thus make room for the untested queens, they will be sold for only

$1.00.

Or I will send the *Review* for 1894 and one of these queens for only $1.75. For $2.00 I will send the *Review*, the queen, and the book "Advanced Bee Culture." If any prefer the young laying queens from the South, they can have them instead of the tested queens, at the same price. A discount given on large orders for untested queens. Say how many are wanted, and a price will be made.

W. Z. HUTCHINSON, Flint, Mich.

Italian Either 5-banded golden or 3-band- **Queens.** ed leather-colored. Untested, $1.00 each; one-half dozen, $4.50. Tested, $1.50 each. Select tested, $2.50 each. Extra select tested, fine breeding queens, $3.50 each.

E. A. SEELEY, Bloomer, Ark.

Golden Queens From Texas. My bees are bred for business, beauty, and gentleness. Safe arrival and satisfaction guaranteed.

216 well-filled 1-lb. sections is what I took from one colony in '93, containing a queen bought of you.
J. A. Whitaker, Oak Cliff, Texas.

Warranted queens, $1.00 each.

J. D. GIVENS, Box 3, Lisbon, Texas.

Sections, Bee-Hives, and other Bee-Keepers' Appliances at Bed-rock Prices.

Best of Goods at Lowest Prices.

Write for free, illustrated catalogue and Price List.

G. B. Lewis Co., Watertown, Wis.

LAWS' ITALIANS IN THE LEAD,

and are in every State in the ***Union*** and several ***foreign countries.*** Queens ***yellow all over.*** Fine ***breeders*** always on hand. Four and five band, $2.00; straight five-band, $3.00. Untested, $1.00; 6 for $4.50. Reference, A. I. Root.

W. H. LAWS, Lavaca, Seb. Co., Ark.

Italian Queens Cheap.

My queens are as good as the best. Untested, 65c each; 3 for $1.75; 6 for $3.25. Tested, $1.25. Select tested, yellow to the tips, breeders, $1.50. Safe arrival guaranteed. G. E. DAWSON, CARLISLE, ARK.

HUSTLERS!

Read what one of the largest bee-keepers of this country says: "The queens (two dozen) came promptly. They are an extra fine lot. The bees are finely marked, gentle, and ***hustlers*** when it comes to ***honey.*** I have no trouble in picking them out now from over 600 colonies."—W. L. Coggshall, West Groton, N. Y., Oct. 17, 1893.

Prices for queens ***bred*** for business from above strain, ***5-band,*** are, May, $1.00; later, 75c; ½ doz., May and June, $4.00; doz., $7.50. July and later, six for $3.50; doz., $6.50. Single queens ***warranted*** purely mated. I ***guarantee*** all queens to arrive safely and to be ***good serviceable*** queens. Send for free circular. Draw money order on, and address, **J. B. CASE, Port Orange, Fla.**

FREE—To New Subscribers, a Choice of these **BEE-BOOKS**

Newman's "Bees and Honey."

This book treats of the management of an apiary for pleasure and profit. Over 200 pages, and over 200 illustrations. The book for beginners or the more advanced. Send $1.00 for the **American Bee Journal 1 year** (weekly) and get the book Free. The "Bee Journal" has 32 pages—established in 1861. Sample Free.

"Scientific Queen-Rearing."

By G. M. Doolittle (portrait shown herewith). Tells how the very best Queen-Bees are reared in accord with Nature's way. 176 pages. $1 00 for this book and "Bee Journal" one year. Address,

GEORGE W. YORK & CO.
56 Fifth Avenue, - Chicago, Ill.

MONEY RETURNED to all buying **PORTER BEE ESCAPES** not satisfied after testing them. Prominent bee-keepers everywhere use and highly recommend them as the best. No others received a World's Fair award. Testimonials, etc., free. Prices: Each, postpaid with directions, 20 cts.; per doz., $2.25. Order from your dealer, or the mnfrs., R. & E. C. PORTER, LEWISTOWN, ILL.

13 Carloads of Supplies.

This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially **FOR THE WEST.**

Joseph Nysewander, Des Moines, Ia.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR MEDINA OHIO

Vol. XXII. JUNE 1, 1894. No. 11.

STRAY STRAWS
FROM DR. C. C. MILLER.

COTTON-SEED for winter packing is recommended by W. H. Pridgen in *A. B. J.*

IF CALIFORNIA is to fail on honey this year, we Northerners must scratch around to keep the market supplied.

CABBAGE-LEAVES, externally applied, are recommended in the *Medical World* for ulcers and diseases of the skin.

EVERY YEAR it's a fresh surprise to find how the bees can run out of stores so rapidly when raising so much brood in spring.

FOUR MEN who find large hives best have reported. Now let those report who have tried the two side by side and find small hives best.

"IS MORE HONEY to be obtained by allowing or preventing swarming?" is a question before both *A. B. J.* and *C. B. J.*, but the juries disagree.

CAN'T CALIFORNIA bee-keepers "chip in" with the fruit exchange, and then can't the rest of us "chip in" with the California bee-keepers?

ESCORT BEES may be introduced with a queen or not; but when a queen is shipped to me I always kill the escorts on account of the remote possibility of foul brood.

MISTAKEN ECONOMY to make top-bars out of any thing but clear lumber. By throwing out the knots you can make them out of cheaper stuff, but in a little while your frames will be twisted.

THE ABILITY to attach spacers to frames already in use is not of great value, from the fact that such frames have not the wide and deep top-bars, therefore the whole frame must be changed.

THE 8 OR 10 FRAME matter has been through the query-box of the *A. B. J.* The replies surprise me; 5 vote for 8 frames, 9 for 10, 5 say 8 for comb and 10 for extracted, and 7 are more or less non-committal.

RAMBLER, p. 415, tries to switch me off on to the hay business. I've hardly capital enough to run the straw business, and it isn't well to try to spread too much, Rambler. Better stick to the straw, hey?

"QUEENS CRAMPING" is a thing I never saw, although I've clipped all my queens for 25 or 30 years. But I don't hold them by the wings when clipping, but by the thorax. [Right here is the secret of no cramps.—ED.]

SHARP PRACTICE isn't confined to the Yankee nation. Capt. Hetherington writes a letter to *C. B. J.*, declining to write an article for publication, and the *C. B. J.* publishes the letter as an article. Makes a good article too.

THE COMB-LEVELER of B. Taylor has the advantage that it is applied to the whole surface at once, hence works more rapidly, has a constant heat, and wax of the darkened edge of comb runs off instead of on to the comb.

TAKEN ALL TOGETHER, I never knew a more favorable year up to the middle of May. Bees are booming, white clover luxuriant, and I hardly see how we can fail of a crop unless we have one of those years when the blossoms yield no nectar.

"WE WOULD not give a straw for a nation which could not do a little boasting," says Holtermann. I don't want to boast; but I'm willing to give a "straw" to say that, on this side the line, we can beat any Canadian bee-journal—except the *C. B. J.*

THAT DOUGH to clean wall paper, that artist Murray gives on p. 422, seems like a good thing. Say, Rob, why not bake the dough after cleaning the walls, and clean the carpet? I've seen professional carpet-cleaners in Chicago cleaning carpet with half a loaf of stale bread.

"As soon as bits of white wax are seen along the top-bar, put on supers," is the rule generally given. It wouldn't do for me to follow it this year, for many of my colonies showed the white wax before apple-bloom. They had not been fed at all, and some were rather scarce of honey. I never saw the like before.

Stephens' spacers have one advantage over the Hoffman frames. The Hoffman will not allow a bottom-bar 1⅛, accurately spaced, and the Stephens will. I don't agree with you, Ernest, that the Hoffman is better because it sticks more. The less "stick" the better for me. But the Hoffman is less trouble and expense. [But *we* want our frames to stick a little.—Ed.]

"Bee-paralysis yields to mild measures in the North," says the editor, p. 425. I can go farther than that, and say that, in Northern Illinois, it needs no "measures" whatever. I've had a little of it every year for years; never did a thing for it, and I think it's hardly as bad as it was years ago. [Yes, we have *seen* less of it in the North, but have *heard* more of it in the South.—Ed.]

A wise wife, who wants to do the most good in the world, will plan to sit as much as possible when doing her work. Potatoes don't taste a bit better when pared standing. Dishes can be wiped just as dry sitting. The woman who sits as much as possible in preparing a meal will furnish just as sweet a meal, and she'll look a good deal sweeter herself as she sits at table. Don't let your wife waste her strength standing.

Smoking bees out of supers, as given by S. S. Kissel, p. 422, works just as he says. I've taken thousands of sections in that way; and when you're in a hurry to get home from an out-apiary there's no quicker way unless it be to pile a dozen on a hive and smoke the bees down. But when you can wait, it takes much less work to pile up 8 or 10 and put a Lareese escape on top; and the sections don't smell and taste of smoke.

Yes, indeed, friend Root wanted me to run one of those two-wheeled affairs. I thought I'd commence gradually, and tried a one-wheeled concern. It tuckered me all out before I pushed it around half an hour. If one wheel was so hard on me, wouldn't two just about kill me? No, sir; I'll try no bicycle till I can run a wheelbarrow. [Your logic tears us all up. But seriously: In the case of the bicycle you *ride* one wheel and push the other. In the case of the wheelbarrow you not only push the wheel, but *walk* and *carry* one-third the burden. Come, now, get off that "fence," and get on to a bicycle—not a wheelbarrow.—Ed.]

GENERAL CORRESPONDENCE

SYMPOSIUM ON BEES AND FRUIT-FERTIL ZATION, AGAIN.

ADDITIONAL FACTS ON THE SIDE OF THE BE

[During the early part of this spring, it w be remembered that we had quite an extensi symposium on this subject in two differe numbers. We had not intended at that time give any more until fall; but so many new a valuable facts have developed that we ha decided to give them to our readers while th are fresh. As usual, they show very concl sively the valuable part played by the bees the fertilization of blossoms. Indeed, with t new evidence and the evidence presented b fore, no reasonable sane man can longer que tion the important work they do in this gre problem of fruit-growing. The first article from Prof. Cook, and is a strong one.—Ed.]

I presume, Mr. Editor, that you did not expe so soon to open again the subject of honey-be as friends of the fruit-grower; but we have ne and important data which are of too much int est to keep back. Early in April, just as t blossoms of our deciduous trees were opening inclosed twigs of the same number of blosso in two close bags, and marked a third contig ous twig with the same number of blosso One bag was left untouched till the blossoms wilted. The others were opened when flow expanded, and bees were caught and put This was done when the bees were worki freely on the bloom not under experiment. Cl examination showed the bees well dusted w pollen. The bees were seen to work on t flowers in the bag, and pollen was seen on t stigmas of the flowers. The trees experiment with were cherry, plum, pear, and apricot. will give in brief only the results at this time

In every case where bags were used, and bees put in it, there is not a single fruit exce on apricot. In every case, with bees in t bags, there is fruit, and in some cases more th where no bags were on the twigs. In the ap cot there is more fruit on the twig covered aw from the bees than on either of the others, a more where a bag was used, and bees put in than on the uncovered twig. This shows co clusively that apricots do not all need cro pollenation. These experiments prove conc sively that a sack over the fruit does no har but that bees or other insects, to cross-pollen the flowers of many of our fruits, are absolut essential. Other insects will answer, but th can not be depended upon. There can be doubt that many kinds of fruit are sterile wi their own pollen, or even that from any flow on their own tree or any tree of the same var ty. That is, for a blossom to fruit, pollen mu be brought to it from blossoms of another var ty of the same kind of fruit. Myself and st dents are now trying a large number of expe ents to make the above a demonstrated fact. he practical conclusion is: Mix varieties in lanting — that is, do not set more than one or vo rows of the same variety side by side, but ix in other varieties, and put those side by de that blossom at the same time. Also have, ithin a mile of every large orchard, a good piary. Cold wet weather prevents fruiting, ainly by keeping bees away. In California e rains are rarely if ever so continuous as to revent a crop, so he who observes the two sugestions offered above will almost certainly ave fruit each year.

Prof. Bailey, the very able horticulturist of ornell University, writes: "Bees are much ore efficient agents of pollenation than wind, our fruits; *and their absence is always delerious.*"

The Division of Vegetable Pathology, of the epartment of Agriculture, has just issued a ost valuable bulletin on "Pollenation of Pearwers," by Norton B. Waite. Mr. Waite says: Incidental mention has been made of insectsitors. We should not proceed without laying me stress upon the importance of these visits. he common honey-bee is the most regular, imrtant, and abundant visitor, and probably es more good than any other species." He ys, further, that cool or rainy weather interres *seriously* with insect-visits. Many varies (22 out of 364 of those he experimented ith), says Mr. Waite, *require* cross-pollenaon; and the pollen must be from a different riety. Bees and other insects are the agents the transportation of pollen. In summing , Mr. Waite says—and this from crucial decive experiments: "Plant mixed orchards, or, at ast, avoid planting solid blocks of one variety. *e sure* that there are sufficient bees in the eighborhood to visit the blossoms properly. hen feasible, endeavor to favor insect-visits selecting sheltered situations, or by planting indbreaks."

This all seems pretty good. When the hortilturists talk this way we may rest assured at the warfare against bees is nearly over. ery soon the fruit-growers will appreciate the od work of the honey-bee, and will urge beeepers to locate right among their fruit-trees. his is what we are coming to, and that very eedily.

Claremont, Cal.

[Well done, friend Cook. You have already, your California home, furnished perhaps the ost positive evidence in regard to the value of es for fruit that has yet been given; and ur quotation from Mr. Waite reminds me of mething I saw recently, I think in the *Rural ew-Yorker*. Somebody made a specialty of owing Bartlett pears, and nothing else, and finally planted an immense orchard all in artletts; but to his surprise this great orchard uld not be made to produce pears as did his rmer experiments on a smaller scale. A rearkable thing, however, soon became evident: he trees around the outside of the orchard bore tolerable crops; and one more strange circumstance let out the secret of the trouble. The nurseryman who filled the order for the large number of Bartlett pear-trees, by mistake got in a *few* trees of some other kind of pears. These were scattered through the orchard; but wherever such a tree was found, the Bartletts all around it bore crops of fruit. It was an expensive lesson; but the fact stood out so plain and clear that there was no gainsaying it; and just now we are beginning to discover that fruit-trees, at least to a certain extent, are like strawberries—there are perfect and imperfect varieties. These need to be near each other in order to secure the best results. No mention was made of bees in writing up this fact; but the truth brought out has a very close bearing on this whole matter. Come to think of it, the experience of almost all of us is also full of facts bearing on this subject. During the past winter I had a large fine tomato-plant in the middle of the greenhouse, which plant has been in bloom continuously since December. Not a tomato has set. Of course, I might have fussed with hand pollenation; but this is rather out of my line, and I have been too busy to attend to it. A few days ago I moved the large plant out into the open air, and now it begins to set fully.] A. I. R.

SOMETHING FROM OUR EXPERIMENT STATION IN REGARD TO FERTILIZATION OF STRAWBERRIES, TOMATOES, ETC.

By E. C. Green.

Friend Root:—I notice in GLEANINGS of May 1st that you speak of raising strawberries under glass. We have been trying to do the same thing for the past five years, but without very great success; but I have noticed this to be true, that, when we had a small number of plants, they did well; but when we had a large number they did not do as well. This, I think, was due to their not being properly fertilized.

I remember one of the best crops we ever raised was in an old lean-to greenhouse heated with a flue. We thought that, if such a good crop could be raised in such a poor greenhouse, in our new house we could do much better. So the next winter we put out quite a large number; but the results were almost a failure.

The past winter I raised as nice strawberries as I ever saw grown out of doors; but I went over them carefully every day with a camel's-hair brush, and carried the pollen from one to the other. I think you are as fortunately situated for raising strawberries in the winter as you are for heat, if you grow them when the sash can be taken off and the bees get a chance to work at them; but if they have to be covered closely during the flowering period, to protect them, they will not do as well.

I was much interested in the discussion in GLEANINGS the past winter on the good that bees do the fruit, and thought of adding my experience; but it seemed as if there was an extra abundance of evidence to prove that they are useful, and very little to prove they are not.

You may think that, if the perfect-flowering strawberries are used, all will be well if the blossoms are not worked with; but I believe that even then good fruit can not be had unless something is done to disturb the blossom.

Quite an interesting fact came under my observation this winter in tomato-forcing, along this line. We had in one house about 200 Dwarf Champions that were planted in August; and by the time winter set in they were as fine and thrifty plants as one could wish to see, and setting their fruit nicely. We felt glad to think what a nice crop of tomatoes we should have; but when January came, and they commenced to ripen up their fruit, the bulk of it was about the size of hickorynuts, *without any seeds*.

The tomato, as you know, is a bisexual flowering plant, but in this case it is evident that the pollen from the same flower was what is called "self-irritant." If bees or some other cause had carried the pollen from one flower to another, or one plant to the other, there would have been a good crop. I have been doing something in cross-fertilizing tomatoes this winter, and have been surprised at the ease with which they crossed, having used the Potato-leaf, Dwarf Champion, Ponderosa, Peach, and several of the common kinds, making in all about 40 crosses. I do not think I shall fail to get seed except in a few of them. I expect that, from the seed, I shall get a lot of "mongrels," as one writer in Gleanings calls such crosses; but I prefer to call them crossbreds, as "hybrid" has a different meaning.

STRAWBERRIES.

You ask in the May 1st Gleanings if there is known a better plant than Jessie for a fertilizer. I think that the Jessie stands at the head of the list as a fertilizer; but as a berry-producer and plant-producer it has proved such a failure in many places that it has to take a back seat for the Parker Earle, Bederwood, Enhance, Muskingum, and perhaps others.

Wooster, O. E. C. GREEN.

[Friend Green, you have hit it exactly, although it did not occur to me until you suggested it. By referring to the picture on p. 270, April 1, you will notice that my bed that has been fruiting strawberries ever since February is right in the midst of our apiary. In fact, you can see the bee-hives along it on either side. Well, there has not been a month during the past winter when the bees have not been busy more or less on the blossoms of the strawberries. The bed was a curiosity to visitors on account of the great quantity of bloom all winter long; and it was something more of a curiosity to the yellow Italians. Whenever a day occurred that they could fly, the sash was either taken clear off from the strawberries, or else tilted in the way I have described, so as to leave openings at every third sash. Well, I should never have thought to mention it unless you had suggested it, that the Italians soon learned the trick of getting in at these openings; and even when the weather was unfit for them to fly in the open air, they would dart out of their hives and go under the glass like a shot; and then they would work on the blossoms until they were satisfied, or a cloud came over the sun, and then they would dart out and go into their hives. It was really funny to see them catch on to the program; and toward night, when I thought best to close the sash, a good many times I had to chase the bees out, to avoid shutting them in over night or longer. The steam heat under the beds, of course, contributed to give them a nice place to have a frolic.

Now comes the important point. I never saw strawberries fruit in the open air or anywhere else with such wonderful profusion as have these. I have never raised any larger or finer-shaped berries, and several have remarked that they never tasted more delicious berries than those grown under glass during the months of February and March, and I am sure you are right about it. The unusually complete fertilization secured by the bees was certainly one secret of the crop; and this same bed is loaded with berries even now. The plants right over the steam-pipe have very little foliage comparatively, and it looks funny to see two or three dozen green berries to a plant, where there are not half a dozen green leaves. I have for some time felt satisfied that, in forcing strawberries to get early plants or berries either, they should have all the open air and direct sun that the weather will permit of. In our locality, so near Lake Erie, the sashes may be entirely off (for *strawberries*) more or less o the time during every winter month.

Now, in order to force strawberries successfully we want some method of handling the sash with little trouble and expense. At present I know of no better way—that is, no bette way without using expensive machinery—than to have the beds not very long—say sufficient to hold 8, 10, or 12 sash, piling them up at each end of the bed, half at one end and half at the other. With the light sash we are now making two boys will put them on and take them of with surprising celerity, after they have learned the trick thoroughly. Boys ten years of ag will do it easily. In fact, our smallest boy rather enjoy being allowed to put on or take of the sashes. Hurrah for the strawberries in February, March, and April! But remembe you want some hives of Italians close by the strawberry-bed. Another thing, you will notice that our strawberries and bees are *not* protected by a most magnificent windbreak o evergreens.] A. I. R.

BEES AND FRUIT ON THE ISLANDS; A REPLY TO THADDEUS SMITH ON PAGE 407.

[I wish to say first, that my good friend Thaddeus Smith is one of the oldest friends o Gleanings; in fact, if I am not mistaken h was a subscriber when the little sheets wer printed by windmill power, away back in the early '70's. Now, perhaps he may be correc in saying that large crops of fine fruit ar raised, even though no honey-bees are to be found on the island; but I am sure he is making a big mistake if he intends to convey the idea that *no* insects of any sort take the place of the bees. If there is not a humming among the branches of those Lombard plum trees when they are in bloom, it will be a state of affairs that I have never yet witnessed. And so with the strawberry-plants. There are a good many different varieties of small insects perhaps belonging to some department of the bee family, that are always found flitting from blossom to blossom. Their legs and bodies are usually covered with the dust so familiar to every one, and very likely these insects perform the office of fertilization without the aid o the bees. I might almost say that, if Thaddeus Smith tells me this is not true, I will be willing to pay him a visit while fruit-trees are in bloom; but I shall surely take along my spectacles. Will other observers please notice what I mention, and tell me if I am not right?]

A. I. R.

[The following from Prof. Cook, although not exactly in the line of this discussion, is akin to it, and we produce it here, requesting our readers to be free to express themselves on the two questions that Prof. Cook proposes at the close of his article.—Ed.]

Dear Mr. Editor:—I addressed a large meeting of the Southern California Horticultural Society yesterday at their annual meeting at Pasadena, on the subject of pollenation. My paper received respectful attention, and I think nearly if not all present were convinced of the usefulness and even necessity of bees in this important role. This seems an important step in the right direction. I feel very certain that the fruit-men will more and more appreciate the value of bees as the most valuable and efficient agents in the work of pollenation; and I consider it proved beyond any question that cross-pollenation is absolutely necessary with many varieties of our most valued fruits.

In the discussion which followed my paper, it was stated that, in certain localities where fruit was dried, the bees were serious destroyers, and still more frequently a great annoyance. I was asked what suggestions I could offer in view of these facts.

I suggested that the bee-keepers and fruit-men hold a joint meeting next winter, and confer together. This was once done in Michigan, and was a marked success. It can be arranged that the fruit men meet Tuesday and Wednesday, and the bee-men meet Wednesday and Thursday in the same place, and then on Wednesday evening a joint meeting be held, when topics of common interest may be fully discussed. This seemed to meet with no little favor. I also suggested that, as bees are so imperatively necessary where orchards are so common and large, no wise person who was rightly informed would think for a minute of removing them from the region of the orchards. The question should be, how we can keep them with a minimum of harm and annoyance. To decide this question should be the object of the joint meeting and conference which I hope may be provided for at an early date.

In such cases, where there is a seeming or real clash of interests, extreme caution and wisdom, no less than abundant patience and charity, should be exercised, lest, by hasty action, much harm result.

In this State, the hydraulic mining was carrying the fine earth to the valleys, filling up the rivers, to the imminent risk and danger to agriculture. Great floods were the result of this filling of the valley river-beds with the clay. A law was passed which stopped all hydraulic mining, and this business was checked. Many a man with bright prospects ahead was doomed to disappointment; towns were changed from sites of activity to places of no business, and millions of gold that should be helping business and the world lies locked up in the California hills. It may be the wisest thing, under the circumstances of our ignorance, to be done; but if so, it is an unfortunate condition, and should make us all work and pray for more knowledge.

Now, we must make no such decision in this case, but must study to know how we may retain the good and escape or at least minimize the harm. I wish to ask for suggestions. Can some method of using screens be adopted, that shall make the bees powerless to get at the drying grapes, peaches, pears, etc.? or in case that is impracticable, would it not be practical and not very expensive to move the bees, in the localities where fruit-drying is an important industry, that the men engaged in this laudable work may escape annoyance? I should like to hear through GLEANINGS and the *American Bee Journal*, from bee-keepers, especially of the fruit regions of California, on these two questions:

1. Desirability of a joint meeting of bee and fruit men.
2. How can we manage our bees so that our neighbors may not be harmed or even annoyed?

We must remember that bees are very valuable to the pomologist; that they are valuable—very valuable—to the bee-keeper, and through him to the world in furnishing a very wholesome and delicious article of food. We must keep the bees, but must study to know how we may keep them, and yet not vex our neighbor. We must all live "peaceable with one another," for "are we not all brethren?"

Pomona College, Claremont, Cal.

THOSE CALIFORNIA HONEY-YIELDS, AGAIN.

A REPLY TO WM. G. HEWES.

By C. H. Clayton.

I have just read the communication of W. G. Hewes, on page 374, with amusement. I am at a loss to know why Messrs. Wilkin and Corey were singled out as the "prevaricators" par excellence. Mr. Hewes is not a member of the State Association of Bee-keepers; was not present at the meeting, and evidently doesn't know what he is talking about. The matter of average yield was brought up by Prof. Cook asking "if any considerable number of those present had kept records of the yield for a term of years," as he had "heard some very glowing accounts of the great yields." Mr. McIntyre, Mr. Moffatt, Mr. Richardson (I think), Mr. Corey, Mr. Wilkin, Mr. Mercer, and quite a number of others representing widely separated localities, reported their yield for periods of from ten to fifteen years, Prof. Cook noting the same. I presume he has his memoranda yet.

There was no report from Mr. Hewes' sheep range. I call it a "sheep range" because there is where you find the ticks he mentions. As to "prevaricators," I for one certainly object to some of the bee-keepers of California being thus indiscriminately spoken of. As a class they are the peers of those engaged in any avocation. Their business standing is good; many of them are church-members; and yet, forsooth, they are "prevaricators"! I'll bet a cooky Mr. Hewes' "exceptional" yield is piled up in the warehouse yet, and he is grouty because he has not sold it.

Now, at the meeting before mentioned I don't remember any one classing 1893 as any more than a "fair" yield. To my certain knowledge there were persons present who did not report, whose yield for 1893 was far above the average reported. In my own case I did not report, because 1893 was the only year of which I had exact record. I will now report:

I began extracting April 19, and concluded the latter part of June, making the season rather short. I visited *every colony once a week*, and the highest number of colonies extracted any one week was 95—the second week in June. I cased up and *sold* 21,600 lbs. The lowest price obtained was 5½ cts., F. O. B. I'm no "prevaricator" either — haven't any "ticks" on my range, neither do I sell honey on "tick," but have the records here to show that the above are *facts*.

Now, Bro. Hewes, if I were you I'd pull off those green goggles and join the Association. Get out from among the "ticks," and learn that your neighbors are wide-awake, progressive men of standing in their communities, and *not* "prevaricators."

Lang, Cal., May 11.

[Mr. Hewes is one of our valued correspondents, and usually accurate; but perhaps he erred in this case. We are sure, however, that he did not *intend* to convey the idea that his neighbors were not progressive or that they were prevaricators. Hello! Here is something from Rambler on this subject.—ED.]

ESTIMATES ON CALIFORNIA HONEY.

In answer to what Mr. Hewes has to say on page 374, in relation to estimates on average honey-yield, I would say that my estimate was based upon my two years' experience, and the testimony of experienced bee-keepers. It has been my endeavor, as secretary of the State Association, to get reliable statistics from not only Southern California, but from other portions of the State; but from Mr. Hewes' opinion of the character and reliability of estimates made by bee-keepers, I shall have to deal with a crowd of inveterate liars. I certainly had a better opinion of the leading bee-keepers of Southern California; and, after all is said and done, I believe them reliable men. The reports at the State convention were made by Messrs. Wilkins, Corey, and Moffatt, as all of the above gentlemen have apiaries not many miles from Mr. Hewes. I am looking for something further from them upon this point. In fact, I am willing to leave the matter in the hands of the men who have had the longest experience, and shall have confidence in their statements, even if they call my estimates excessive.

During the past year this State produced over 7,000,000 lbs. of honey. To produce this amount there must have been some large yields; but our friend may question the above figures, of course; if they go against his preconceived notions, it is very easy to call in Mr. Spoopendyke and reduce the figures, for Mr. S. is very accommodating. RAMBLER.

QUEENS CHANGING.

HOW QUEEN-BREEDERS UNJUSTLY RECEIVE THE CREDIT OF SENDING OUT HYBRID QUEENS, OR QUEENS NOT IN ACCORDANCE WITH THE ORDER.

By Jennie Atchley.

I have a letter before me in which a customer states that last year he purchased a tested queen of me, and she produced nice pure bees last year, and this season she turned out to be hybrid. Now, I have been watching this thing for years, and I am satisfied beyond a doubt that such is not the case. I will mention that, for several years, we have placed a mark of identity upon all tested queens sent out, and some have been returned as hybrids after being all right at first, then turning hybrid, and, in *every instance*, the queen has been a different one from the one sent out. Now, I know there seem to be some hooks and crooks in nature; but I have failed to find it in the queen-bee. Her mission is as straight as a bee-line, and it is we poor human beings who get crooked and mistaken. We do not have queens returned because we think bee-folks are dishonest—no, no; but, on the contrary I find them to be, as a rule, the most upright and straightforward of all people. But there are so many people who get fooled in introducing; and, the queen being superseded by swarming or otherwise, we like to see and learn for our own satisfaction how it was. Now, there are many ways for a queen to be superseded, especially where there are several colonies kept in one yard. Some time during a season a starved-out swarm may enter a hive and kill the queen, and the queen of the stray colony be accepted, or they may raise another; or by swarming or common supersedure. In all my experience and observation I never knew a case where a pure queen turned out to be a hybrid, nor do I believe in a second mating of the queen. Where proof seemed to be strong in the direction that a queen had turned hybrid after being a pure one, it has *always* turned out that it was another queen in her stead. When the case is thoroughly investigated I should be pleased to hear from others on this subject, and see if there is such a thing as a queen turning over. Coming in contact with so many queens, and by close observation, I have failed to find any thing to lead me to believe that a queen changes through life the color of her bees, or *ever* is mated a second time, which is just about one and the same thing. Please let us hear the testimony through this journal.

Beeville, Texas.

[You have brought up a subject that sorely needs ventilation. Our own customers have at times complained that queens we have sent them, at first produced pure Italians and afterward hybrids. We have always told them that there was an exchange of queens. But this explanation seldom satisfies, and the customer feels that we either sent a queen in the first place that was not strictly pure, or else one that did not keep pure. Of course, this last is absurd. Yes, we have had customers complain that a select queen sent was nothing but a poor hybrid, when our record showed that the hive from which the queen was taken had pure bees in it at the time of her removal, or until the progeny hatched from the new queen in her place.

Here is another case where the queen-breeder is unjustly accused: An inexperienced beekeeper imagines his hive queenless when it is not. He sends for a queen, introduces her (or thinks he does), and in the course of time he finds a queen laying in the hive, and *assumes*, of course, that this is the new queen. In the majority of instances, when the queen is already present, the stranger is killed, and the old queen-mother goes right on assuming her accustomed duties. The purchaser does not notice the exchange, but he does notice that the newly hatched bees are no improvement, and then he accuses his queen-breeder of dishonesty; or, if not that, requires him to send another queen, agreeing to "return the old queen." Now, on the part of the purchaser there is an honest misunderstanding; and on the part of the queen-breeder there is an assurance, as his records show, that he sent just what he agreed to. But to prove it to his customer, he can not; and so, to keep up his record for fair dealing, he sends another valuable queen; or, in effect, sends two queens at the price of one, and the purchaser has the use of only one.—ED.]

T SUPER, HEDDON SUPER, AND WIDE FRAME.

SEPARATORS VS. NO SEPARATORS.

By Dr. C. C. Miller.

The article of Hon. R. L. Taylor, on page 327, with its bloodthirsty footnote, claims my attention. Like him, I have used "the Heddon super and the wide frames very largely." I have also used the T supers largely, but, unlike him, I have discarded the first two and retained the T super.

I have puzzled quite a little, Bro. Taylor, over your statement that there is no trouble in packing sections produced without separators. When the Heddon super first came out, a good deal was said about its being a success without separators, and I was sanguine about them; but I never succeeded in getting satisfactory work, and I supposed I was stating a general truth in that respect. True, I could manage, not without trouble, I confess, to pack the sections; but it was a good deal harder to unpack them without breaking cells open. If you can succeed in it, I wonder wherein the difference lies. Is there any management that will make the bees build straighter without separators for you than they do for me?

You are counting that an occasional section will be fastened to a separator, and you seem to count that as so much against the separator. I think that is a mistake. Why is it fastened to the separator? If I mistake not, it is in all cases because the bees have put more honey on one side of the section than the other, thus making it swing out of plumb and against the separator. If the separator were not there, would it not bulge out of its place so as to be just as bad as with the separator? There is, however, this difference, that, when the section is cut away from the separator, it will bleed; but I never knew it to bleed much, and the adjacent section is not affected as it is without the separator. Now, unless it be true that in some way the separator *causes* some sections to be built out of true — and I never heard that claimed — then I think it is true that all the sections that are out of true with separators would be so without, and in addition there are untrue sections without separators that would be true with separators. Allow me to say, however, that I don't have sections fastened to separators nowadays. I use bottom as well as top starters, not for that special purpose, but primarily to make sure that the sections shall be well fastened at the bottom.

Admitting, however, that separators are not a necessity for every one, is it fair to consider that separators are an essential part of the T super? Please take it on its own merits, and compare fairly. You say the Heddon super can be emptied more rapidly than the T super if the time required to get the separators out is considered. In other words, getting the separators out takes time. Well, so can the T super be handled more rapidly without separators. And if you don't need separators with the Heddon, neither do you with the T.

I don't agree with you, that "it is fair to say that at least twice as much time is required to get the sections fixed in the T supers," but there is probably something in knowing how. I don't think we take much more than half as much time now as we did at first. Leave separators out of the count, and I think it will take a very little longer, but I'm not sure it will take any longer to put sections in the T than in the Heddon super.

I think you are wrong in claiming that "the Heddon case has the added advantage, that sections filled in them contain considerably more honey, so that less foundation, fewer sections, and fewer shipping-crates, are required." In that, you are talking about the difference of separators or no separators, and please remember there's no law to compel you to use separators in T supers. You are right in claiming for supers without separators all the advantages I have quoted, unless it be the matter of foundation; for with a comb of honey of a given thickness it will take just as much foundation, whether with or without separators. There is a further advantage that you do not mention, although I am sure you must be familiar with it, and that is, that a section without separators has a plumper, nicer look. Certainly if I could raise as straight sections without separators I should prefer sections without them.

Now, look here, Bro. Taylor: when you come to compare T supers with wide frames I feel almost sure there's something I do not know about; and when you make positive statements about them as a result of your experience, without any reasons, I suppose I may be allowed to do the same, even if some of my conclusions are directly opposite to yours. Cleaner sections are obtained with T supers when taken off in good season, for there are no angles to tempt propolis on top, while with the wide frames it is not possible to have the edge of the section correspond so exactly with the edge of the top or bottom bar but that inviting angles will be left. But if the sections are left on after the harvest is over, then the wide frames are better, for at that time bees will paint propolis over the flat surface of the top of a section in a T super. Sections are as completely filled and capped in one as in the other. The T super can be filled in less time than wide frames. It takes twice as long to empty the wide frames. There is no difference in the number of partly filled sections.

Now, there's one comfort in the case. Seeing the wide frame fits the climate of Michigan, you can use it; and I can use the T super, which I have found to fit a good deal better in Illinois.

Marengo, Ill. C. C. Miller.

[Separators are now so generally used that the bee-keeper who gets along without is the exception. The Doctor seems to have no trouble from bees attaching combs to separators, and he uses wooden ones at that. See editorial, elsewhere. —Ed.]

RAMBLE 109.

GOLD-MINES; SLEEPING IN A GRANARY, ETC.

By Rambler.

"Pass the word along the line, and let's move on the enemy!" That's about what Mr. Powell said one afternoon when he called at my ranch. I saluted by scratching my head, and saying, "I am ready;" and early Monday morning found us mounted on a long-bodied wagon, starting on a sixty-mile journey; and the enemy we had in view was about 200 colonies of bees, all in fighting order, and they were to be moved 40 miles. The feet of our pony team pattered over Victoria Bridge, in Riverside, waking the echoes up and down the "arroyo." We followed Victoria Avenue for a few miles, and then turned toward the mountains, following another "arroyo" for several miles. We were now beyond the ranches, and the broken country seemed of but little value for a bee-range, as there was an utter absence of sage or other honey-producing plants. An occasional sheep-corral, and a lonely shepherd with his sheep and faithful dog, were the only living things to break the monotony of the journey. Our shepherds are very pensive in appearance; their gait is governed by the hunger of the sheep or the abundance of the feed. Much hunger and little feed causes a rapid movement of the herd and a consequent move of the herder: much feed and little hunger gives the herder an easy time. The shepherd and his staff and crook have always been inseparably connected in my mind—imbibed, I suppose, from Bible pictures. Our shepherds are far from Bible standards in various other ways; and instead of reclining gracefully on the hooked staff they substitute a bottle of wine.

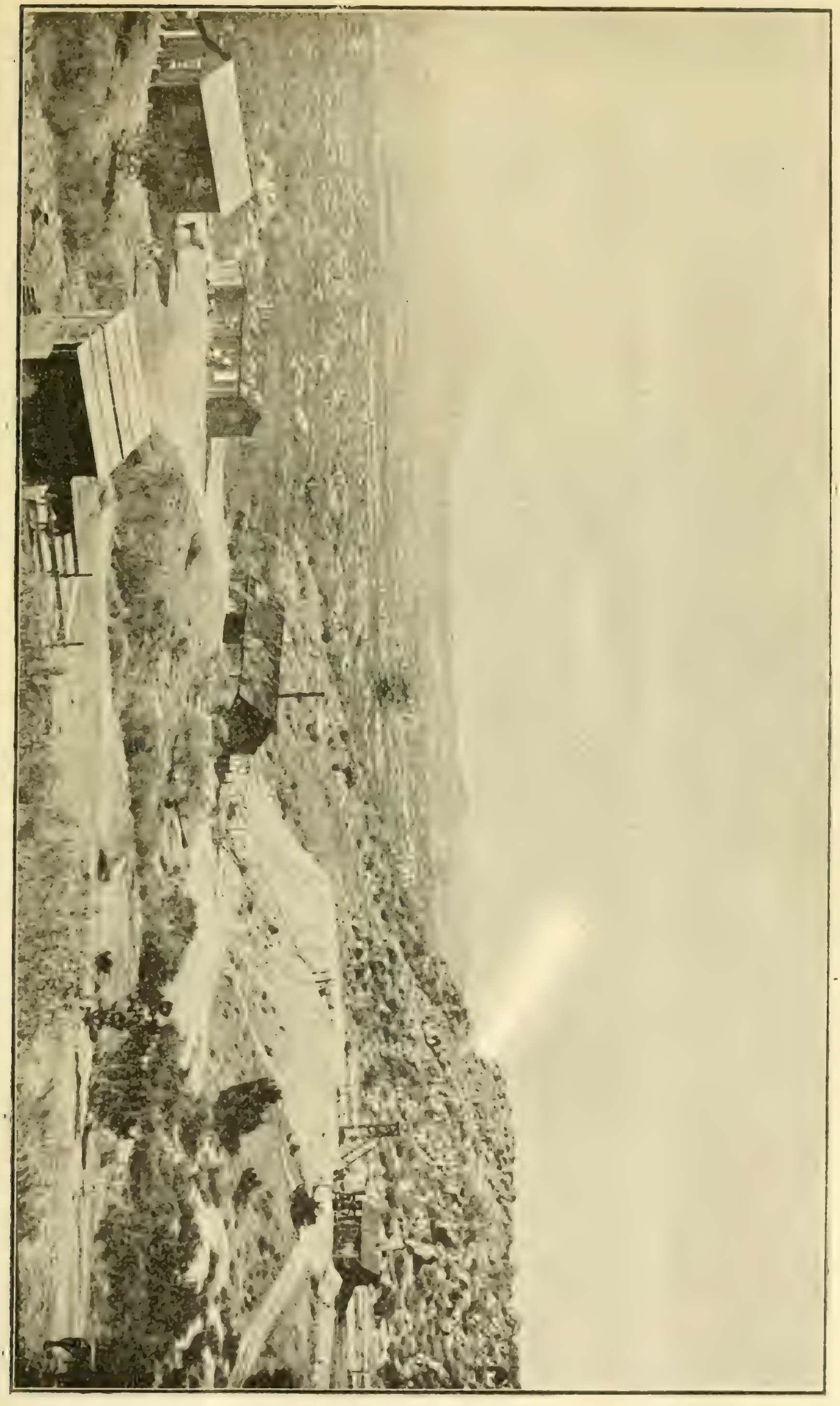
Our ponies had a very good road with little up grade; but now after getting up into the mountains the grade was more acute, and zigzagged around the mountain-side — a sudden twist to the right or the left around sharp spurs, under overhanging rocks and through narrow defiles. I felt so "elevated" that I came near breaking forth into the following song:

While up the mountain climbing
  I sing this merry strain:
The echoes catch my music,
  And send it back again.

I was afraid the strain might be too much for my friend Powell. He was an excellent manager of the lines and whip — especially the latter. I didn't wish to see him skip off down the mountain, so I just whistled the strain, and so there was no harm done. We at length crossed the divide, and we found a comparatively level country, with an abundance of rocks ahead of us. This is a very fair honey country, with not many apiaries.

Gold-mines seem to be the fad here, and several shafts were being sunk into the bowels of the earth. We fed our tired ponies and ate our noonday lunch near the Rosina mine. This mine had been worked some time, and it is a type of all the rest in the vicinity. The shaft had been sunk about 200 feet, and at an angle of about 60 degrees. The buckets for hoisting the quartz were operated by a hoisting-engine; and from the shaft it was transferred to the stamp-mill, a little below. I secured a photo, which will give a very good idea of the mining-camp and its surroundings—the white quartz from the shaft, and the country, covered with granite boulders and greasewood, and a sprinkling of sage. We did not see gold lying around loose; and a question about the mine was answered evasively. Gold-miners are all non-committal. They are so used to sinking money in holes in the ground, and taking out only a small portion of what they put in, that being non-committal becomes a second nature to them.

There are several mines on this range of mountains; and as we pass over the range and down toward Elsinore we pass the Virginia mine, now closed, and the Good Hope mine, now



ROSINA STAMP-MILL, QUARTZ GOLD-MINE.

in a prosperous condition, and worked with a large force of men. There were evidently some rough characters here, for a man had been recently killed in a shooting-affray. Mr. LaRue owns a prosperous apiary near the mines, and there are others scattered up and down the canyon.

Night caught up with us, as it has a habit of doing when people are traveling, and we forthwith camped by the roadside near a respectable-looking ranch. It seemed to be a highly prosperous ranch; and among the other products of the soil were several boys, dogs, cats, poultry, and cattle. The boys were very attentive, and had a great desire to lay in a fund of useful information. They knew us to be bee-men from our wagon, such rigs being common thereabout. They informed us that Mr. Crawfoot was a very big bee-man, owning hundreds of colonies just over the eastern hills. We were subjected to all sorts of questions. One little biped wanted to know if I had any little boys 'nd girls 'nd cats 'nd dogs at my house. His little snoozer of a dog just then grabbed for our dish of canned beef. Our frying-pan corrected his bad habits, and distracted the attention of all concerned. The boss of the ranch also sat down for a friendly chat; and as we were about to turn in under our wagon he gave us permission to sleep in the granary. Having eaten a large supper we accepted his invitation with grateful hearts.

As we tucked ourselves comfortably in our horse-blankets, among the sacks of barley, pillowing our reflective ends on our shoes, from which we had previously extracted our feet, we mercifully thought of the poor people in our great cities who have not even the comforts of a granary with a hen-roost attachment in which to rest their weary and emaciated bodies. This hen roost attachment of ours possessed a rooster with a very sonorous disposition; and at most unseasonable hours his disposition would break forth into a fortissimo chanticleer challenge. At the close of his exercise, a broncho, just through the board partition at my left, would draw about twenty feet of halter-chain through a ring, suddenly hump up his back, and groan. I think, however, it was a horse-laugh. He was practicing the bucking process, and laughing at the exploits to be performed on some tenderfoot the next day. As he would let up on his exercise the chain would run back through the ring; and the rhythm of that chain music, and the various other attachments to our granary, soon lulled us into undisturbed repose.

We hurried off in the morning before the boys got around with a new set of questions; and, having a good road, we sent the dust behind us at a good rate, and arrived at our destination at a little past the noonday hour. We were upon the McCombes ranch, and 200 colonies of bees, save 4, were to be prepared for removal in the shortest possible space of time by Mr. Powell and myself.

DZIERZON'S TWIN HIVE.

HOW HIVES ARE USED DOUBLE IN GERMANY.

By Karl Rudolph Mathey.

KARL RUDOLPH MATHEY.*

It is well known that the inventor of movable bars, to which combs were fastened, John Dzierzon, is likewise the inventor of a hive which he strongly recommends as the most perfect abode for the bees. This, together with the fact that his hive is very simple and cheap in construction, is the reason why the dual form of hive is so widely disseminated.

The "twin" hive (as we will now call it) is not a two-story one, as one might conjecture from the name, but a single-story. It is called "twin," therefore, because of its peculiar form, two of them being used back to back, as seen in ground-plan in Fig. 2. The side and front walls are double, and packed with straw. The rear walls, which lie against each other, are made of single boards. Besides this, the hives have the additional twin feature of having their contiguous back walls provided with entrances of equal height and breadth, exactly opposite each other. These extrances are usually kept closed by means of a wedge-shaped block, as shown in the cut. To remove this block it is necessary to spread the hive apart a few inches, say a hand-breadth; and after this is done, the two hives can be made into one in a very short space of time. It can in this manner very easily be made a separate colony, or, on the other hand, be united with some neighboring colony. The length of these hives in proportion to their breadth is such that two, side by side, lying at right angles to two other hives lying side by side, and on top of them, will constitute a pair of double hives, or a two-story hive, as it might be called. Thus the bees of such a hive can have entrances at four points of the compass at the same time. Dr. Dzierzon is fond of piling up these tiers three and even four high, covering them with a little roof, thus extemporizing a small garden pavilion consisting of eight hives, in pairs, lying crosswise of each other, so that, at each side, each two colonies may have an exit. The hives are of wood; the packing of the front walls is of straw.

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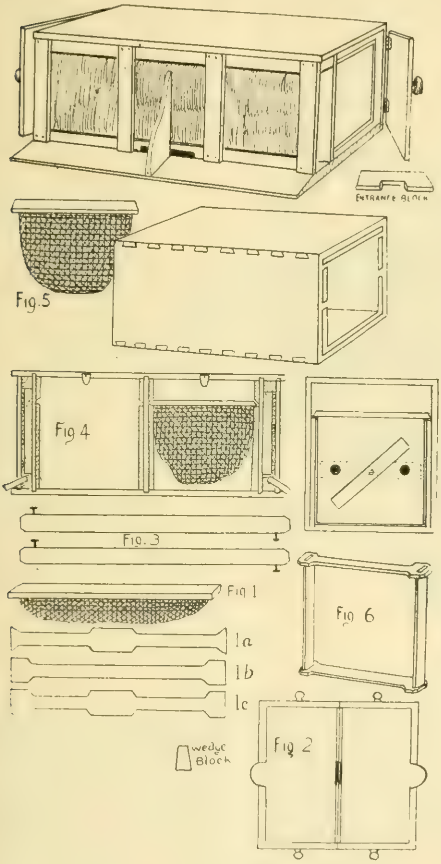
* We give above a picture of a man who has followed bee-keeping since the sixth year of his life, and who for nineteen years has been engaged in apiculture and agriculture with untiring devotion.

Our bee-keeping friend, Karl Rudolph Mathey, was born June 29th, 1859, in Rattibor, Prussian Silesia. His father was a lawyer, but died suddenly in 1865. The mother gave her son a very careful education and training. The love for bees dates from his earliest youth. On his sixth birthday he received as a present from his uncle (a major in the German army) his first colony of bees, and the family gardener became his teacher. From that time on he has followed bee-keeping. In his eighteenth year he went to the University. Since the year 1884 he has been actively engaged as an apicultural writer. In April, 1879, 400 colonies of bees were already in his yard. In 1884 he opened up an apiary with 500 stocks for the sale of bees. From that time forward he followed the business of bee culture, and raising fruit-trees by the wholesale, and now has several bee-yards, with 1700 colonies in all, which are under the management of his brother. With the patience of a Job he has read nearly all works on the bee and its culture which have appeared since the invention of printing.

Mr. Mathey traveled, as member of a natural-history club in 1886, throughout Russia. In 1889 he traveled throughout France. In 1890-'91 he made the tour of Italy as a member of a party of students in natural history. Rome, Naples, Herculaneum, Pompeii, were visited. Mt. Vesuvius was also included in the trip. The party then traveled from Brindisi, by steamer, up the Nile to Aussuan, in Middle Egypt; whence, after flying visits to various places, they returned to Cairo. From Cairo they proceeded to Alexandria, Port Said, Jaffa, and from there to Jerusalem. From the latter place they made several excursions, going down to Jericho, to the Jordan, the Dead Sea, and back over Mar Saba to Bethlehem, and then back to Jerusalem. The journey home was by way of Constantinople, through the orient, to civilized lands, each person getting home as soon as possible.



Each hive can be opened at either side. They measure, outside, 16 inches high; and their breadth, as already stated, is such that, when placed side by side, they will assume a square form, the upper layer corresponding to the lower. The height of a four-story hive (and which, consequently, would consist of eight hives) would be, allowing 16 inches to each story, 64 inches; but under all this is a platform about one foot high, to allow of the easier manipulation of the lowest hives.

Dr. Dzierzon has called this combination a "twin" hive because it is always used in couples, back to back, so that the two colonies may in winter keep each other warm. Whether the hive is made of wood, or wood and straw, it makes no difference as to the internal arrangement.

The Dzierzon top-bars are used. These rest in a groove, or rabbet (Fig. 4), 12 inches from the bottom; and above that there is an empty space for a cover-board.

If one wishes to separate the brood-chamber from the honey-apartment, a division-board, as it might be called, is inserted.

At first Dr. Dzierzon used a simple bar of wood (Fig. 1), one inch wide and ¼ inch thick, as a top-bar. These bars were cut as long as the hive was wide. To these were fastened strips of comb, which were then placed in the hive for the bees to draw out. The distance of the frames from each other was determined by the eye. Later these bars were improved by cutting in them scores ¼ inch deep, shown at *a*, *b*, *c*, and these indicated the right distance for spacing the frames. This purpose was also accomplished by using wire nails, driven into the inch top-bars, one at one end and another at the opposite end and on the other side, as seen at 3. This was Dathe's invention.

To give the comb a good firm hold, the bees would always build it fast to the side walls of the hive. To obviate this trouble, Baron Berlepsch devised the little frame shown in Fig 6. The upper part of this frame consists of the bar already described, seen at *b*. The side pieces and bottom-bar may be dovetailed or nailed.

The height of this hive may be modified at will; but Dr. Dzierzon recommends 16 inches, of which one inch is for the upper and lower walls; 12 inches are devoted to the brood-chamber, which is filled with frames, and the remaining space of 3 inches serves as room for manipulation in taking off the covers.

Medina, May 1, 1894.

YELLOW JASMINE.

GELSEMIUM SEMPERVIRENS.

By Dr. J. P. H. Brown.

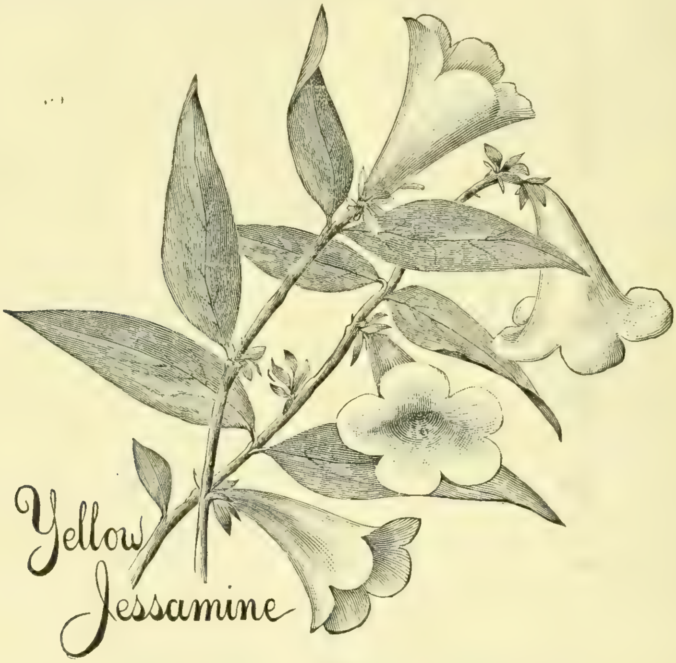
The yellow jasmine is a creeping, twining vine that grows in the southern portions of the United States from North Carolina to Mexico. It grows more luxuriantly on light sandy uplands than in alluvial bottoms. It blooms in February and March, depending upon locality—

earlier further South. When in full bloom it presents a beautiful sight with its yellow trumpet-shaped flowers, covering the small bushes, often hanging in festoons, and twining around the trees, filling the air with a strong yet pleasant perfume. Its duration of flowering is about two weeks, depending much upon the weather. When there are heavy rains and much wind, the blossoms fall.

It belongs to the natural order *Loganiaceæ*, and is described botanically: "Stem twining, smooth and shining; leaves perennial, opposite, lanceolate, entire, dark green above and paler beneath; petioles short; the flowers are in axillary clusters of a deep yellow color, and fragrant; calyx five-parted, corolla funnel-shaped, with a spreading border, five-lobed, nearly equal; anthers oblong, style long and slender; stigmas two, two-parted; capsules elliptical, flat, two-valved, two-celled; seeds flat, attached to the margin of the valves."

All parts of the plant possess poisonous properties. Drs. Wood and Bache, in their "United States Dispensatory," describe the poisonous effects as commencing "with sensations of languor with muscular relaxation, so that the subject finds some difficulty in moving the eyelids and keeping the jaws closed. More largely taken it occasions dizziness, dimness of vision, dilated pupil, general muscular debility, and universal prostration."

Prof. T. G. Wormley obtained an alkaloid extract from the plant, which he termed "gelsemine" — a powerful poison. One-eighth of a grain injected into a strong cat killed it in one and a half hours.



THE POISONOUS HONEY-PLANT OF THE SOUTH.

Dr. W. H. Burt, in his work on "Materia Medica," remarks in regard to the poisonous effects of gelsemium: "The retention of consciousness until very late in the poisoning, both in man and in the lower animals, shows that the drug has very little power over the higher cerebrum, although the drowsiness and the final loss of consciousness prove that it is not entirely devoid of such influence. The two most prominent symptoms caused by the drug are the convulsions and paralysis."

The hive-bee will work on the bloom; but it seems more from necessity than choice; for, when other forage is accessible, you rarely see a bee on it. The Italians frequent it much more than the blacks; in fact, it is rare that you see one of the latter on it. The flower yields more pollen than honey; and what nectar is gathered is used up in breeding, so it is seldom that any is stored. Still, we have many cases on record where it had been stored. and, when eaten, caused all the symptoms of gelsemium poisoning.

It is very easily told when bees are working on gelsemium. The flower, being trumpet-shaped, they have to crawl in to get access to the pollen and nectar; and in turning around, their whole body becomes coated with the bright-yellow grains of pollen.

Whether the product of the jasmine-blossoms has any poisonous effect upon the bee is a question that has been discussed to a limited extent, pro and con. Those who took the negative side of the question were mostly persons who knew very little about the plant. To arrive at correct conclusions in a matter of this kind requires a long-extended observation, assisted by many demonstrative experiments. I have been conducting observations for the last 25 years to determine this question, and I am satisfied that bees are susceptible to the poisonous product contained in the gelsemium bloom. At first they seem to be taken with a sort of shaking, or convulsion; the abdomen swells; they tremble, and either crawl or are carried out of the hive. If the colony is strong, half a pint to a pint of dead bees can be found in front of the entrance every 24 hours. Your black colonies will show very few. The trouble will be kept up during the duration of the bloom, and cease as soon as the flowering is past. The affliction (if I may so term it) is less perceptible during a stress of bad weather. It can also be controlled by feeding or by drawing the attention of the bees from the bloom.

As formerly stated, as quoted from the highest medical authorities, the poisonous effects of gelsemium are more perceptible on the nervous ganglia than upon the cerebrum. This, no doubt, explains the susceptibility of the bee to the action of this poison, as the nervous system of the bee consists in a great measure of a series of nerve ganglia.

Augusta, Ga.

[We have had so many inquiries in regard to this poisonous plant that we finally asked our friends in different sections of the South to send us green specimens of it. Why from different sections? Because we wished to compare them, to see if they were alike. A careful examination showed no difference. The freshest of the specimens was sent to our engraver, with a request to make a pencil-drawing, which was then submitted to Dr. J. P. H. Brown, for inspection. The drawing was so nearly accurate that but little change was necessary to make it perfect, and then we had it engraved, and the result is before you. Dr. Brown has taken great pains to study up the plant, and we are sure that we may accept him as authority on it.—Ed.]

GIVE US FACTS.

By James Heddon.

I do not know that I can better illustrate to the readers of Gleanings the very trying position one is placed in when he is asked to prove a negative, relating to a charge of misdemeanor, than to call attention to the fact that common law is the very essence of logic. This being admitted, as it must be, it must also be admitted that we can reasonably ask no more of an accused, in the social world, than we may ask in the legal world. It is logically just as true, that we must consider and treat a man as innocent until he is proven guilty, in the social world, as in the court. Logic is logic in the one place just the same as it is in the other.

In the charge of "honey-adulteration," which has been brought forward against me, it is not only true that there has not been sufficient evidence discovered to convict me in law, but there has not been one-tenth part enough; in fact, not any at all, that could possibly be termed other than the slightest circumstantial evidence. There has been no more logic in levying a fine upon my reputation and my business than upon my purse, without competent evidence. I wish to impress your readers that this matter, considered between municipal law and social ostracism, must have as much positive evidence in the one case as the other. There is no answer to this statement except the illogical answer of "precedent." It can truthfully be said, that it is not the common practice to demand the same evidence, before the multitude believe a member guilty, that is required by the jury before they bring in a similar verdict. The answer to that statement —which is true—is, that it is *too* true, and for that very reason the world is cursed with criminal gossip.

But if I do not mistake in my judgment of human nature, the late attack against my product has not injured me nearly as much as it has injured honey-producers at large, because a slight injury to each one would aggregate very much more than an immense and crushing blow dealt upon my head. Perhaps no truth can be told which will go farther toward ameliorating the damage than the one I have before repeated; viz., that no honey-producer can *afford* to adulterate his honey. I believe I have always carefully avoided boasting, and I am sure I have purposely avoided painting our business in glittering colors, afterward to be condemned by those who fail because they couldn't be measured in my bushel; but in this case the truth is demanded; and I tell it when I say that I can produce first-class extracted honey at less cost than glucose can or ever could be bought. I believe many other bee-keepers (although not all) can do and are doing the same thing. Now I ask you, in the name of common sense, why any honey-producer who has reduced the cost of honey to the minimum should go to an extra expense to degrade our product, commencing with his own property first? It isn't true; and to teach it, is, as I said before, not only a charge of serious damage to the accused, but one of immense damage to our fraternity.

A cherished doctrine with me is, that truth is lasting, while error is weak and perishable. I do not believe in the theory of "holding the wretch in order," by deception, to say nothing of "fear." I believe that we, as bee-keepers, want to know the truth. We want to know it about glucose, which has so much to do with our product in the fancy and fears of bee-keepers. I do not believe that glucose is unwholesome in the least. It was born in Germany and France, where the laws and sentiments of the people are most radically against injurious food. It was adopted into this country, and swept like a cyclone into the first position as a sweet sauce. I do not believe that Americans could be such fools as to partake in such a movement if the same was to their injury. Data do not show it. It is not so; *it could not be.* To prejudice the minds of bee-keepers, basing our cause upon such prejudice, is wrong, and simply means that the work has all to be done over again at a twofold expense. I am practically repeating what I said at Lansing and Flint. I believe it, and it will be well for those who honestly think I am mistaken, to kindly and logically set me right. They would at the same time be performing the same service to many other of my bee-keeping friends who think just as I do. The producer of sweets, who flies into a passion of rage, and begins to hurl epithets and false charges at a new competitor, occupies the same position as a section-manufacturer who would curse some bee-keeper because he had discovered (and by that discovery blessed bee-keepers and the world) a new material and process by which a superior section could be made and sold at the low price of 50 cents per thousand. Let us have the truth; we are told that "the truth will set us free;" it certainly will not enslave us. The more men know, the less they believe that it is untenable. I am not afraid of facts. If going into partnership with truth will starve me, I shall have the satisfaction of realizing, in my expiring moments, that I died in good company. But I am not afraid of that. Whether it be glucose or oleomargarine that is being decried, I have no respect for the movement if I can discover no logical reason for it, other than unwise selfishness. I detest its morals, and I fear its policy.

I have written the above for a bee-journal, and for its readers—*bee-keepers*—and if it serves no other purpose it may serve me the one of letting them know that I have convictions and do not fear to express them.

Dowagiac, Mich., May 21.

FAX.

By Ellery Krum.

Thay is more wimern bee-keepers raizin' queens fer sail than wuz ever heerd of afore.

Accordin' to Quinby signs, this is goin' to be a bad hunny yeer—the apple bloom wuz so skeerce that it kum and went 'fore the bees hardly knowed it.

I'd ruther have Gleenins sort o' layin' round loose than to cripple these old friends of mine by sockin' nails through their spinel columns.

One thing sartin and shure about the 8-frame hive; you don't have to look over ten frames backwards and forwards half a dozen times to find a pestiferous hybrid queen.

Y' ever try wirin' frames 'thout usin' enny tacks? Purferate twice to begin with; put wire through and back, givin' it several twists, then pull down tite; thread the remainin' holes, and finish as at first. It's just as neat and much more substanshel.

Forest-leaves makes best stuff fer packin' Thay don't draw moisture like chaff, and ha the old-fashuned proteckshun of a holler log.

Wuz at Ingeanoplis tother day, and seen m bee-keepin' friend Walter Pouder. While thar I seed sum of Root's extra polished seckshuns and thay knock the sox off of enny thing I eve kum acrost in that line.

It pays to give your bees good proteckshun All of mine is done up in leaves, and them tha wuz packed deepest are overflowin' with bee already, and layin' out of nights; and what i gratifyin' thay have got brood—a hull passe of it too—built right next the hives in the *out side* frames.

Had a colony last seezin' on thick-top Heffman frames that wuz too much crowded in th brood-chamber for lack of surplus arrangement, and, kontrary to expecktashun, th frames wuz burred, braced, and chunks of hunny stuck on to the end-bars. The frames hun true, and the spacin' wuz kerrect. Now isn't i a fax, Mister Editer, that one of the best prevenshuns of burr-combs is suffishent room durin' the honey-flow?

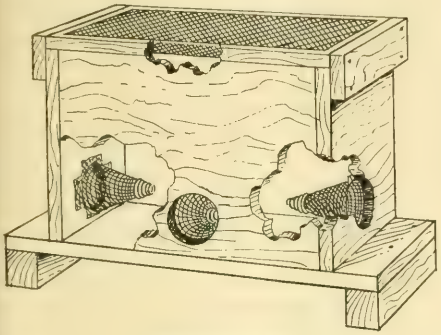
Oh the robber bee! he can't be beat,
Jimmin' around for something to eat;
Though the field is wide and the clover
sweet,
He'd ruther be lootin' his neighbor fer
meat.
But alas! the little piratical elf
Is cheatin' nobody so much as himself;
Fer he pokes his nose into cells of *glucose*,
When he might be swiggin' the sweet
from the rose!

[You are quite correct in regard to this burr-comb question; but has any bee-keeper any business to let any colony become so crowded that the bees have nowhere to store honey, except to push spurs of wax in every conceivable nook and cranny, and chuck them full of honey? Therefore we may argue that, with good management, thick-top Hoffman frames, with proper spacing, are a bar to these nuisances. We feel quite sure that, in the majority of the very few cases where it is reported that the wide thick top-bars do not prevent burr-combs, it is due to the very fact you mention—that the hive was overcrowded with honey. Every bee-keeper knows it is very bad policy to have his hives lack for room in the height of the season. —Ed.]

McINTYRE'S ROBBER-TRAP.

By J. F. McIntyre.

At our State convention last fall I happened to state that I caught the robbers in a trap. Since that time I have had several letters asking for a description of said trap. Last season, after the honey-flow I reared and introduced over 300 queens; and, being much annoyed by a band of educated robbers that had learned enough to go wherever the smoker was, I deermined to try to trap them. The plan of eeping them busy by slow robbing had not ome out yet. After trying several devices, and ailing, I finally hit on one that was successful. t is made of an ordinary 10-frame Langstroth xtracting-super, without frames; a bottom-oard is nailed on the bottom, and a three-nch hole bored in each side and end near the ottom. A short wire-cloth cone is pushed into ach hole, and nailed; a ⅝ hole is made in the pex of each cone, and a West cell-protector crewed on to finish out the cone. The cover s made of two sheets of wire cloth, one nailed n each side of a frame the size of the top of he hive. This is to prevent the robbers inside rom passing the honey used as a bait through he wire cloth, to the robbers outside. I hang frame of honey inside for bait. It is neces- ary to have plenty of light above to draw the ees away from the cones below; but the hot un should not be allowed to shine in on the ees, for it will kill them. By setting this trap ut in the apiary with a lighted smoker on it I oon caught all the robbers that were in the habit of following the smoker and killed them. I would not kill bees in the spring or any other time if they were of any value; but these old hairless robbers were of no value at that time. At other times I catch the robbers and keep them imprisoned until dusk, when they are glad to get home and quit.



ROBBER-TRAP.

After I had quit working with the bees in the fall I went out to the apiary one day and found a weak colony overpowered. The robbers were just tumbling over each other, and the whole apiary was in an uproar. My honey-house has bee-escapes on the windows, so I just carried the hive inside that was being robbed, and placed the trap on the stand where the hive was. In a short time I had nearly all the robbers in the trap. I kept them there until about dusk in the evening, when they were glad to go home, and next day all was quiet.

Fillmore, Cal.

[Something similar to this has been suggested before; but we can not now recall when or where. The idea is a valuable one; and during those seasons when robbers are especially bad we do not know but we should be tempted, after caging them, to destroy them altogether. As in the case of human beings, so with bees; when they once learn bad tricks—when they once acquire the habit of stealing—it is hard for them to get honey honestly thereafter.—Ed.]

THE BEST HONEYS OF THE WORLD.

HOW TASTES VARY ACCORDING TO LOCALITY.

By Chas. F. Muth.

Friend Root:—Our friend Hubbard, of Walpole, N. H., is asking for my idea on sourwood honey; and as the matter may prove interesting to others, and I know that our friend will see it, please give it space in Gleanings.

Sourwood furnishes a very good honey, of light color and good flavor. I should put it in the same class with basswood of the North and Northwest, or the orange-blossom or saw-palmetto of the South. We have just now a new arrival of orange-blossom honey. It is of good quality and fine taste, and we advertise it as something "new and choice;" but we shall be no more able to raise a customer for it now than we were at former trials. A certain preference would be given to basswood over sourwood honey, because of the former having a lighter color. All the above will be sold to manufacturers principally, almost exclusively. The most popular and most praiseworthy honeys are: Northern white clover; mangrove of Florida, and sage of California, in their purity—i. e., without an admixture of other qualities. According to my experience, this trio includes the only qualities accepted by the public for table use. Almost all other qualities go to the manufacturers principally.

It must be remembered that our tastes are cultivated. While basswood honey is of fine quality, and, no doubt, popular in the basswood region, still it will never be successfully introduced in a clover country, for table use. I have tested the matter for many years. Horsemint honey, very obnoxious to our taste at first, loses its bad flavor gradually by our handling and tasting it. When my friend Dr. Lay said, "Horsemint is the honey for a man of Texas," and when I replied that it amounts to nothing in business (what he and I should like), both of us were correct. Only those qualities which are popular, or can be made so, count. All qualities next to the above-mentioned trio, in regard to flavor and color, go to manufacturers The idea I intend to convey is, that, according to my experience in the business, white-clover honey stands at the head of the list; next comes mangrove of Florida; next, sage of California; and next, any amount of other varieties too numerous to mention, all of which can be sold to manufacturers only, because of their lower prices. However, any thing is possible these times, the business features of which are abnormal and unnatural.

Since we sold at 6 and even at 5½ cts. per lb., by the carload, each of first-class California and of clover and basswood honey, we can hardly find customers for dark honey at any price. The bottom has come out of prices of all articles of late, which, I hope, is temporary only.

Cincinnati, O., May 7.

[What Mr. Muth has said in regard to the taste of individuals in different localities is quite true; and along with this idea it may be well to say that, in certain parts of York State, a considerable number consider buckwheat the finest honey in the world. They like that rich strong flavor and dark color. To them, no honey can stand in comparison with it; and in regions where basswood seems to be the chief source of supply, no honey is considered equal to it. It is well that there is this variety of taste; because if everybody universally agreed that one kind of honey was the best, honey from all other sources would necessarily bring a lower price; but as it is, there are quite a number of "best honeys" in the world.—Ed.]

THAT NEW PLAN TO PREVENT SWARMING.

By G. M. Doolittle.

While I would not on any account discourage new plans (for out of the invention of new plans for the various manipulations of bees has come *wonderful* things of late), yet I can not feel that it would be right to let pass unnoticed some of the obvious errors which are found in the article by Bro. Edson Hains as given in Gleanings on page 405. To let these errors pass unnoticed would perhaps cause many to put time and money into such a swarming-preventive arrangement, by way of building new bee-hives or by altering old hives over, boring holes, etc., in them, with little if any prospect of success, as I can see it; while a word of warning may save some from going into this thing headlong, and allow those who wish to experiment along this line to do so understandingly. In the first place, the plan is not a *new* plan, for it is very similar to the D. A. Jones plan which was given to the world some ten or fifteen years ago. The Jones plan was to allow the queen from six to eight combs for laying in, which were placed in the center of the hive with perforated zinc on either side and over them, with two or three combs near the entrance, and between these and the queen's apartment two wide frames of sections were placed, while more wide frames of sections were placed back of the queen's apartment, and finally sections placed over the whole top of the hive. As soon as the six or eight frames were filled with brood, three of them, having brood in the most advanced stage, were taken out and put in the place of the three combs in front of the sections, and next to the entrance, while those combs were placed in the brood-nest to give the queen plenty of empty room. In two weeks the three combs in front, now nearly empty of brood, were substituted for three with nearly mature brood again, from the brood-nest, and so on through the season, thus keeping the queen's apartment empty of honey, with plenty of room for eggs, while the bees could store their honey in the sections in front and overhead without going into the brood-apartment at all unless they desired.

The whole thing looked so reasonable to me that I made five hives on this plan, and in early spring put five good colonies into them, working them according to instructions, with the result that every one of them swarmed, and the whole thing was a complete failure so far as the merits claimed for it were concerned, as I gave in the columns of Gleanings of about that time. It matters not whether the queen can go out with the swarm or not; so long as the bees contract the swarming fever, and that fever continues, they are of little value as a colony for storing honey in sections to the best advantage, and I can see nothing in the Hains plan which will prevent their contracting the swarming fever, more than there was in the Jones plan. The whole thing is based on the false idea that bees coming in from the fields loaded with nectar go directly into the sections and deposit that nectar in the cells. Mr. Hains says, "When I put on the surplus case I place it so the bees can have ready access to it from the combs in front of the excluder, without passing through the zinc. This partially keeps the honey-gatherers out of the brood-nest and saves them the trouble of going through the zinc heavy laden with honey, and it prevents them from emptying their load right into the brood-nest where the queen is about to lay her eggs." This is only the old idea over again, which caused an entrance to be placed at the tops of the frames of thousands of the first-made Langstroth hives, as well as at the bottom, so that the bees in returning from the fields with their loads of honey could go direct to the sections and thus be saved the time, trouble, and travel of climbing up through the crowded hive with their loads. I have lain hours enough, when put together, to make days, by the side of a single-comb observatory hive to see what I could find out in this matter, as well as other matters, and I never yet saw a bee, coming in loaded from the field, deposit the load of nectar it had, in a cell of the comb, unless honey was so abundant that every bee was so filled that it could hold no more, which does not happen once out of ten thousand times; but the load is always given to one of the younger bees which has not yet entered the fields as a field worker, and taken by this bee and deposited where it is wished. Again, the same thing is proven when we change a colony from German bees to Italians, by changing queens some time before the honey-harvest. There comes a time when all the German bees will be field-bees, and all the

Italians will be inside workers; and if this change was made so this time comes in the height of the honey-flow you will see none but black bees going in and out of the entrance; while, if you take a look at the sections, you will find only Italian bees there at work, or *vice versa*, according as the change of queens happens to be. Thus it will be seen that all plans to save the field bees traveling into the brood-nest of any hive, by way of "comb-ladders," etc., are fallacious.

Again, Bro. Hains seems to expect, if they do swarm, and the queen happens to squeeze through the zinc, she will stop on the two outside combs; but, according to my experience with the Jones plan, this will not be the case; for the queen is just as anxious to get entirely out and away from the hive she has formerly lived in as any of the other bees which go with the swarm. Another thing I notice is, that "undesirable drones should be kept in the brood-nest." Don't you do it, for there is no one thing that makes me feel "edgewise" toward perforated zinc as does this matter of its confining the drones to the hive, where they rush around pell-mell every day from one to three o'clock trying to get out, and kicking up a disturbance generally till their life is worn out of the them; and after they die they are still worse than they were when alive; for the workers will tug and pull at them in the vain effort to remove them from the hive, till the hair, legs, and wings are all pulled off; and, finally, if there are too many of them they clog up the zinc, and rot or ferment, and become a stinking, sickening mass, unless removed by the apiarist. No, no, Bro. Hains; either remove all drone comb from the apartment where the queen is, or else provide some means for the drones to get out of the queen's apartment.

Again, I notice, "Virgin queens, being smaller, will be able to get through the excluder to take their flight." By close experimenting and measuring, I find that the thorax of a virgin queen is just as large when she is hatched, or six days old, as it ever is; and as it is the *thorax* which prevents a queen or drone going through the perforated zinc, any queen that can go through when a virgin, can go through when she is fertile, providing she exerts the same energy to get through later on in life. This she is not apt to do, except in cases of swarming, and this is the reason why so many queens in full laying powers do not go through the zinc, while virgins do, and not because the virgin or fertile queen at swarming time has a smaller abdomen. Lastly, Bro. H. assumes, and this assumption is accorded to him by the editor in his footnotes, that the bees dislike to go through the perforated zinc. Now, if this is really so, we as apiarists of the nineteenth century had better dispense with it, only in cases where it is absolutely necessary to use it, and have it go out to the world that, whenever we do use it, we do it with the full understanding that we do so at a sacrifice of dollars' worth of honey to accomplish the purpose we are after. How is it, brother and sister bee-keepers? are we using perforated metal at a loss in honey?

Borodino, N. Y.

[This is timely and to the point. There is always some one of our old veterans, if not the editor, who is prepared to say whether an idea is old and whether there is any thing in it. As you intimate, we were not prepared to say ourselves that loaded bees would take the shortest route to the super. If it is true, as you say, that they turn their loads over to the young bees and they in turn deposit it in the combs, there would be nothing in the new plan. Mr. Doolittle has made quite a study of this matter, and, if we are correct, his conclusions have been indorsed by one or two others. But over against this there is this fact: Years ago we once left, in the height of the honey-flow, some combs leaning against the entrance. The loaded workers, instead of going into the entrance, deposited their loads themselves in the aforesaid combs; and one or two observers have since said that they would also store in the first two combs near the entrance, leaving the young bees to transfer it to the supers.

But you say that this plan before us was tried by D. A. Jones and others—yourself included—and that there proved to be nothing in it. It is indeed important to know this at this time. In the mean time let us have facts from actual observation as to what the field bees do with their loads, as a rule, on arriving at the entrance. Definite knowledge on this point may make it necessary to make some modifications in the brood-chamber. Your last point is well taken, if bees do dislike to go through zinc. We had not thought of it in that light before. The mere fact that bees will store tons of honey above it, does not look as if they objected to it. So far, extensive bee-keepers say that they can not discover that it makes any difference in the yield of honey.

Later.—Since writing the foregoing we have received a letter from H. W. Funk, of Norval, Ill., stating that, five years ago, he tried a non-swarming plan, quite similar to the Hains plan on 10 colonies. They all swarmed, he says, and sooner than the rest of his colonies.—Ed.]

CALIFORNIA ECHOES.

By Rambler.

One dollar per colony is the assessment on bees in California.

Chalon Fowls' letter to the boys is not so much boys' play, after all, out here. Hundreds of colonies are caught that way in decoy hives, and not a few make quite a business catching and selling such swarms.

Of course, Dr. M., there is more honey left in the brood-chamber when the colony is run for comb honey. There is also much honey left in the brood-chamber when the colony is run for extracted honey, if there is a queen-excluding honey-board in use.

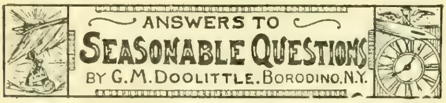
Oh, no! we never laid up any thing against the manufacturers of the secret flat-bottomed foundation. This is a free country, and everybody has a right to conduct any legitimate business according to his own ideas, even if said ideas do smack of our grandmothers' days.

In the vicinity of Fallbrook, San Diego Co., there are fifty apiarists, with 6000 colonies of bees. The amount of honey in 1893 was over 200,000 lbs.; 75 per cent of it was comb honey—pure as when distilled in Dame Nature's cups and shaded by Flora's beauteous hives, inferior to none. So says R. A. Neff, in the Fallbrook *Observer*.

"Blessed are the peacemakers." Prof. Cook gave the people in Bloomington, Cal., a talk upon how the bee aids the fruit-culturist, by the pollenization of the blossoms. The fact presented was news to some of the fruit-growers present. The effect was beneficial, showing the dependence of one industry upon the other. Such talks often will result in harmony. Again, "Blessed are the peacemakers."

That is just as we expected, that you would all come around to our California view and say that galvanized-iron tanks were good enough for honey. Perhaps something is due to the fact that California persisted in using them, not only for honey, but for drinking-water. Honey is very rarely allowed to stand in a tank until it candies. It is no small job to dig it out. The digging also has to be done in the night, otherwise the bees will insist upon helping. The bee-keeper is very careless who allows his honey to remain long in a tank.

I would say to Bro. Elwood, that my authority for saying that the New York bee-keepers were secretive over their honey yields was from a successful bee-keeper who dwelt for several years in Cherry Valley. I do not wish to make the application sweeping against all of the bee-keepers of New York, nor even against all in Central New York; for I think too much of my native State and her noble sons: but I wished to bring out the figures, and compare results. Our latest figures, compiled from railroad and steamship lines, puts our shipments for 1893 at about 7,000,000 lbs.



ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

DELAYED FERTILIZATION.

Question.—How long may a virgin queen be kept confined in a nursery-cage or otherwise, before being allowed to take her wedding-flight?

Answer.—The thought put forth in the above question is something which I consider of doubtful expediency. I do not believe it possible for any queen to be *just as good* a queen after being kept confined so she can not fly out to meet the drone, when nature prompts, as she would be if she had her liberty to do as she pleased. So far as my experience goes, all perfect queens will fly out to meet the drones when from six to ten days old, during the months of June, July, and August, if the weather is favorable for such flight; and any contrivance which prevents their doing so is an injury to the future value of the queen. If the weather is unsuitable, this same queen will have no desire to go out till such a day comes; hence there is no uneasiness, consequently no injury to her value. But confine her once on a nice day when she would otherwise go to meet the drone, and she is injured to the extent of the efforts put forth to accomplish her purpose. Now for some pointers along this line, as I have experimented quite largely, in the vain hope of having queens mated in confinement.

As given above, the rule is for a queen to go out when from six to ten days old; but during the months of April and May, also of September and October, queens frequently do not become fertile till they are from two to four weeks old; and in one case I had a queen become fertile in late October, when she was 32 days old. All these queens proved as good, so far as I could see, as did those which were mated at about the usual time as first given; and from this I argued that, if I kept a virgin queen confined till she was from three to four weeks old, she would be as good as any, the same as were these later-mated queens, their late mating being brought about by weather not suited to give them the inclination to meet the drone. So I kept queens in nursery-cages and otherwise till from two to four weeks old, then introduced them to frames of hatching brood or boxes of queenless bees; took them into the fields with me where drones congregated, in cages, with and without bees, letting them out, when they would always return to the cage, even though not a bee accompanied them in the cage; put them with drones in barrels having glass tops; under tents with drones, into dish-covers, etc.; but I never yet had a queen mated, to my certain knowledge, unless she flew from a box or hive of some kind having both bees and *comb* in it; while not one of these queens which were confined past the time when they had a desire to fly to meet the drone proved to be as valuable as queens allowed their own sweet will; and some of those kept confined till three or four weeks old before commencing to lay never laid worker eggs to an amount sufficient to fill five Langstroth frames. After trying nearly every kind of short cut, as they are called, to secure laying queens, often, from nuclei, by using virgin queens of advanced age to take the place of queens which are sold, giving to queenless bees frames of hatching brood, etc., I have settled down to the plan of giving a mature cell in all cases where a queen is removed in such a way that we desire a virgin queen to take her place, as being much the best plan of any, taking all things into consideration.

STORING AND FUMIGATING COMBS.

Question.—I have about 800 empty combs. How can I protect them from the moth? and what is the best method of fumigating them?

Answer.—If the questioner wishes to keep these combs for an indefinite time there is no way except to fumigate them and then store them where the female moth can not have access to them. But if he or she expects to utilize them during the present month or fore part of July, fumigation may not be necessary. My plan of storing combs from which the bees have died the previous winter is to store them in some dry airy room, where they can be hung two or more inches apart. In storing them I select out all that contain much bee-bread or pollen, and place them by themselves where I can use these first; then I select all having but little pollen in them, and place these where they will come to hand next after those first named; then I select all which are old and black, and have these next at hand. while those having been used but little by the bees for brooding purposes, and having no pollen in them, are left to be used last or latest in the season. All white combs in which no brood has ever been reared, whether containing honey or not, and that have been taken from the hives during the fall, winter, or early spring, are almost moth-proof, or, at least, I have never, to my remembrance, had such combs disturbed by the larva of the wax-moth, where kept as above for any term of years; but when such combs are taken from the brood-chamber of the hive during hot summer weather, and stored away as above, then they may be troubled some. Combs stored two or more inches apart, with those having the most pollen in them to the front, need not be looked after in this locality till June, when they should be examined; and if any fine webs are noticed about the cells containing pollen, these should be given to the bees as soon thereafter as possible. By about the tenth to fifteenth, look after those having little pollen in them, and by the 25th look after the old tough combs, while those which the bees have used but little for brooding will rarely be touched before July 4th to 10th. In this way I have no difficulty in using all the spare combs I may chance to have before the moth troubles them to an extent tending to injure them.

But if we wish to keep combs during a whole season or more they must be fumigated, or else have been exposed to a temperature of about zero during the previous winter. Where this latter has been the case, pack them away in early spring in some box or closet which is moth-proof and they will keep for ever, or as long as the closet or box keeps, providing no female moth is ever allowed to deposit eggs on them. To fumigate, place in a tight room, or in hives which will sit closely on each other, without bottoms, when we burn sulphur to the amount of a pound to every 400 cubic feet contained in the hives or room. In sulphuring combs there is little fear of using too much sulphur; for should a deposit of sulphur occur on the combs, thereby giving them a greenish tinge, it will not harm as it does on comb honey. In sulphuring honey, *too much* care can not be taken in guarding against the possibility of fire; for a room filled with the fumes of burning sulphur is a poor place to go to extinguish what may prove to be a conflagration unless extinguished in time. For this reason, an iron kettle, partly filled with ashes, with live coals on the ashes, with the combs so hung that none of them can melt and fall in the fire in the kettle, is the best thing to use to pour the sulphur on. If you wish the combustion of the sulphur to be complete, too much must not be poured on too small a surface of coals, otherwise a part of the sulphur will not burn as it should.

LADIES
? !
CONVERSAZIONE

BEE-VEILS — HOW TO WEAR THEM.

ANOTHER PLAN, ESPECIALLY ADAPTED FOR LADIES.

By Miss Emma Wilson.

I have been quite interested in reading about the different devices used for fastening the bee-veil, but so far I don't think I like any of them as well as my own — probably because it is my own, and is old and well tried, as I have fastened my veil so for years. Dr. Miller has also used it for some time, and pronounces it a success. He has been wanting me to write about it ever since Mr. Hutchinson gave his device, but I have kept putting it off. Finally some remarks of Mr. Hasty, in the *Review*, have stirred me up to write. What he says, like all that he writes, makes very interesting reading

I get the impression that he has formerly been in the habit of tucking his veil inside his shirt-collar, and Mr. Hutchinson speaks of doing this also. Now, I should think that would be a most uncomfortable, choky way of disposing of a bee-veil. I don't wonder they want some different device. Mr. Hasty seems to have been very much pleased with the Porter method. Still he says, "But (would you believe it?) I am not altogether happy yet. Like the children of Israel in Egypt, I sometimes 'fall a lusting,' and want to put my honey-dripping fingers in my mouth. To untie the string of the new device, and loosen up, takes too much time. Who will invent an elastic side entrance, or something that will let me get at my 'potato-trap' with the minimum of hindrance? Moreover, I am sadly dependent on my spectacles, and want to put them off and on frequently. In this I can't so well deny myself as I might in the other case."

He also refers to Mr. Ernest Root's method of wearing his bee-veil under his suspenders, and says it will do very well for the men, in warm weather. "But," he says, "in such a case, whatever and ever are the ladies to do, pray tell?" Now, I think that Mr. Hasty need not worry about the ladies. When it comes to fastening on a bee-hat or a bee-veil, they are away ahead. I confess, my way is so simple I never thought of telling any one about it until one day Dr. Miller, who always lets his hang loose, complained of bees bothering him by getting under his veil, when I asked him why he didn't fasten his veil down as I did mine. He did so, and has fastened it down ever since. He had seen me fasten mine down for years, but I suspect he considered it rather fussy and a waste of time, though I think it would take about three times as much time to get one bee out from under the veil, to say nothing of the sting.

I will say, for Mr. Hasty's benefit, that Dr. Miller uses his spectacles, and samples honey quite often too, without unfastening his veil. We use a bee-veil with an elastic cord around the bottom. In the center of the front of the veil, at the lower edge, we place a large safety-pin, catching it through the hem of the veil, over the elastic cord, so there will be no danger of tearing out. It is always left hanging to the veil when not in use. When we put our hats on, the pins are there, ready for use. I usually fasten my pin by catching it through a buttonhole; if not, I pin it to my waist. Dr. Miller pins his to one suspender when wearing neither coat nor vest. One pin is all that is needed, and the hand can be easily slipped under the veil when necessary. I pity the poor men, who can not pin their hats on with a hat-pin. However, Dr. Miller thinks he gets on very nicely by tying his hat on with strings when it is very windy. But then, he doesn't know the comfort of a hat-pin.

Now, Mr. Hasty, please try my way and see if it isn't simpler, easier, more comfortable, and saving in time, having the security of the Porter plan, with the added advantage of comparatively free intercourse with any part of the face.

Mr. Hutchinson thinks an elastic in front would result in numerous folds in front of the face to obstruct the vision. In this locality, such a thing doesn't happen.

Marengo, Ill.

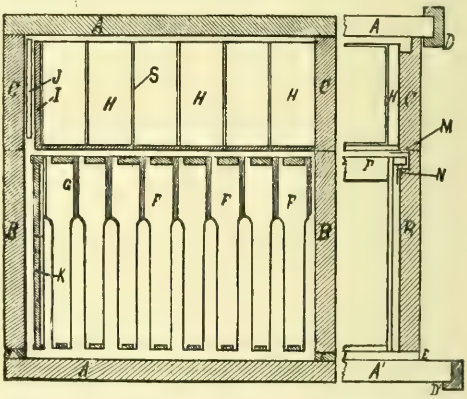
[It is seldom that we do much with the bees unless it is so warm that we can work by working briskly with comfort without coat or vest; and then we know of no plan that is quite so handy as the suspender plan, illustrated in our last issue. The only objection is, it can not be used by the ladies. So far we know of no plan for them that is any better than the one suggested by Miss Wilson. At all events, we would have the veil so arranged that honey-drippings, that will somehow get on the fingers, may be licked off; for there is no comfort in handling a smoker or any other tool with sticky fingers, and we are not afraid to lick our fingers clean of most of the honey that may accumulate on them during the operation of handling heavy combs, for instance. Perhaps some of you may think this is a slovenly way. Think of it as you may, it is the way we clean honeyed fingers except when the grass is dewy, when we just simply run them through the blades, till the sticky honey is wiped off. But when working in the hot sun most bee-keepers find it necessary to take a drink of water occasionally. We do not even stop to raise the veil—we drink through it; and clear water never soils the veil nor harms it; and, besides, the line of vision is away above the point that may be temporarily obscured by the particles of water.—Ed.]

TRADE NOTES

BY EARNEST R. ROOT.

THE NEW DOVETAIL HIVE.

In the article by Dr. Miller, following, the reader will get some idea of the recent improvements that have been made in the Dovetailed hive; these are only slight, and confined entirely to the brood-frame and follower. The following cross-section will show you that the new hive is practically the old one.



Some time ago a number of our subscribers, conspicuously among whom was Dr. C. C. Miller, advised that the top-bar of the Hoffman frame be made 1⅛ inches wide, and full ⅞ inch deep at the sides. The one last year was $1\frac{1}{32}$ wide, the sides being cut down to allow for the comb-guide. On comparing a large number of reports it was evident that the wider and deeper top-bar gave better results in the exclusion of burr-combs and especially brace-combs, or those combs built between the top-bars.

The extra width makes exactly ¼-inch space between the top-bars, or what is now regarded as the most correct bee-space, in which the bees are the least liable to build comb or deposit propolis. The demand for this change became so strong that we finally consented to make the top-bars wider and deeper; but by making the top-bar 1⅛ inches wide, we found we should run into a snag, as it didn't leave finger-room sufficient to get hold of the ends of the frames when spaced so close together. We, therefore, at the suggestion of one of our subscribers, Mr. J. A. Scudder, narrowed down the projecting end of the top-bar, leaving it only ¾ of an inch wide. Incidentally this gave the bee less chance to attach by propolis the end of the top-bar to the hive rabbet.

By extending the top-bar down to full ⅞ inch deep it would leave no comb-guide, so it became necessary to leave a bead with a trough, as it were, on each side; but the outside edges would have to be blunt in order to prevent the bees from building combs to the sides instead of to the proper comb-guide in the center. The accompanying engraving shows the new frame.

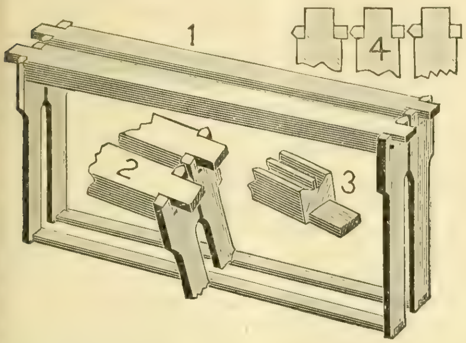
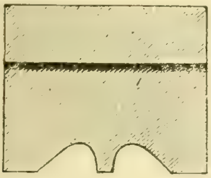
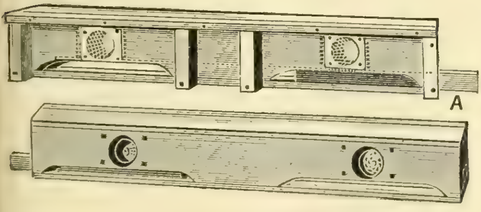


Fig 1 shows the frames as they appear together in the hive; in Figs. 2 and 4 the narrowed-up ends of the top-bar shows more plainly. Fig. 3 shows the under side of the top-bar with the comb-guide.. Unfortunately the engraving is incorrect; the outside edges should be four times as wide as the center or comb-guide, or like the accompanying cross-section. The top-bars as thus made may be used without foundation.



We have also changed the bottom-bar from ⅜ square to ¼ x ¾ inch. Complaints came in, to the effect that the bees would sometimes build comb clear past the square bars, and hence the change. The bottom-bar ¾ inch wide seems to be a nice compromise between the extremes.

It should be stated, that these sight changes will make no confusion in frames already in use, and the extra " finger-room " at the end of the top-bar especially, will at once be appreciated.



LANGDON NON-SWARMER.

Since last year Mr. Langdon has made some slight modifications in his non swarmer; on the back are nailed cleats as shown in the cut, the purpose of which is to render it unnecessary to bore holes in the hive, and incidentally it secures better ventilation. The non-swarmer is used the same as recommended last year, with the exception that *less* time is allowed between the changing of the working force from one hive to the other.

OUR NEW HIVE.

IT IS REVIEWED IN DETAIL.

By Dr. C. C. Miller.

I have before me a Dovetail hive-body filled with frames with full sheets of foundation, all ready to give to the bees, the whole being the latest approved pattern at the Home of the Honey-bees. I've looked it all over, handled it all over, studied it all over, and I'd give something, Mr. Editor, to have you for a short time where I could talk it all over with you. If you come, I'll promise to handle you carefully and return you in good order. One reason why I'd rather talk than write is that, in talking, if I make some objection that has no weight, an immediate reply ends it; whereas a written opinion stands against me if it be a wrong opinion. But I'm pretty sure you'd like to know what I think of the hive, so I'll tell you what I like and dislike. I may as well say in advance that my likes very much outweigh my dislikes.

The feature from which the hive takes its name, the dovetail corner, after trying ever since Dovetail hives were made, I feel sure is an excellent thing. No other corner that I have tried has held so solidly together without the least sign of yielding.

The hive is painted, and I'm inclined to the opinion I'd rather have it without for the good of the bees. But it might be a good thing to have the corners painted.

I prefer a cleat on each end at the top as handles, but those are easily added. The larger hand-holes that you are now making render the cleats less important.

Turning to the inside, those top-bars 1⅛ by ⅞, with the ¼-inch space between, are a real delight to my eyes. I think I'd be willing to stand all the disadvantages. and more too, for the sake of having those top-bars.

The V edge on the end-bars I must mention very softly, and it would be some relief if I did not have to mention them at all; for I have been very pronounced in my opposition to them, and it is only lately that I wrote you privately that you might count on undying hostility to them from the majority of bee-keepers. To be obliged now to say that there is a possibility of some good in them is humiliating. I said the bees would plump bee-glue in that angle, and they do. But your late editorial calls attention to other things that put the matter in a different light. There is no denying that, with the first form of Hoffmans. after they have been in use a year or two, the bees get so much propolis crowded between the parts that come in contact that they do not pull apart as easily as they might; and, worse than that, the increased room they take up makes it hard to take out the dummy. Your argument is, that the V edge will allow the frames to be crowded together more easily, the sharp edge cutting its way through the propolis. I can't find any good reply to that argument. The surfaces in actual contact with the V edge measure only about an eighth as much as in the other kind, so the same force will squeeze eight times as hard on the opposing surfaces. So I am forced to admit that it is in the limit of possibilities that the V edge is an improvement.

The peculiar way in which the dummies are made, allowing just the right space between comb and dummy, I like much. I like the lightness of the dummy, but have a little fear that the end of the top-bar may break too easily.

The frames slide very easily on the folded tin support; but is there no danger that in time the wood will be cut or worn away by sliding on the tin? When the frames are crowded tight together there is only an eighth of an inch between the outside top-bar and the side of the hive. The bees will be sure to fill propolis in that one-eighth space; and, moreover, if a comb from the center of the hive is put there, that part of the comb which has sealed honey will be only an eighth of an inch from the side of the hive, and it will be thoroughly bridged with comb. True, you can leave the end-bars an eighth from the side of the hive; but spacing it thus by sight takes time, and can not be exactly done. Would it not be well to have eighth-inch blocks in the corners for the end-bars to strike against?

You do not have the frames wedged together. I believe that's ever so much better. Really, the greatest objection I have to fixed distances, as I have used them, is the difficulty of getting out the dummy. With space enough and no wedging, that difficulty will disappear.

If it were possible to have the top-bar of the dummy the same width of the boards in the dummy ($\frac{3}{16}$) I should like that, for at present there is only $\frac{1}{8}$ inch between the two top-bars; but I don't see how it can be done without making the top-bar of the dummy too weak.

Now let's take a frame out and look at it. That bead on the under side of the top-bar seems a useless thing; but when I see how the foundation is fastened against it, there seems a use for it. But what's the good of the ditch on the one side of the bead where there is no foundation? Looking closer at it I find the foundation is not fastened in the center. On one side, from the foundation to the under edge of the top-bar is $\frac{7}{16}$ of an inch, and on the other side $\frac{9}{16}$. Of course, our combs must be freely interchangeable, making it often occur that two of the shallow sides will come together, or two of the deeper sides. In the one case it will make the combs $1\frac{1}{2}$ inches from center to center, and there would be nothing so very bad about that. But in the other case the combs would be $1\frac{1}{4}$ inches from center to center, and to that I should decidedly object. When in use, the hive before me will probably have the three different spacings—$1\frac{1}{4}$, $1\frac{3}{8}$, and $1\frac{1}{2}$. Now, instead of cutting two grooves in the wood, let there be only one, so cut that the foundation will be exactly in the middle. Or, it may be better still to have a saw-kerf for the edge of the foundation to fit in loosely, then a few drops of melted wax will keep it in place till the bees fasten it. If $\frac{1}{4}$ deep, no waxing is needed. The trouble with saw-kerfs is, that they are usually made too narrow. The foundation before me is $\frac{1}{8}$ inch thick, and I suppose a saw-kerf to receive it should be $\frac{5}{32}$ at least.

I suppose you have fastened the wires in the foundation by electricity. At any rate, it is an artistic piece of work, much admired by Emma, who probably takes a sort of maternal interest in it, as she was the first one who imbedded wires by means of heat.

The question arises, whether it might not be a good thing to put bottom starters in brood-frames. In the frames before me there will be a space between comb and bottom-bar which is objectionable, and means about 5 per cent less comb surface in the frame. You know that bottom starters in sections are a success, and I think they might be more successful in brood-frames on two accounts: A bottom starter of $\frac{5}{8}$ or $\frac{3}{4}$ inch stands up of its own accord in sections, and the thicker foundation would stand up better. Besides, in the brood-frame the bottom starter can be cut of such width or depth that the lower wire can be imbedded in it near its upper edge.

On the whole, I believe you have done a fine thing in getting up this hive, and I'm going to try it to the number of fifty, V edge and all. If I find on trial that they are not as good as I supposed, I make no promise to keep quiet.

Marengo, Ill.

[We assume, Doctor, at the outset, that, while you are apparently "on the fence" regarding some things, you are anxious to get on our side, providing you know the ground will hold up—or that we can convince you that it will. We like good company. Well, in regard to the V-edge, you seem to have a tolerable assurance that the ground is all right. We are sure you will doubt no more after you have tried those 50 hives.

About that paint. Just the other day we visited a small apiary where the owner had put in, some 9 months before, a lot of new hives. They looked as if they had been recently painted with one coat of paint, for the boards were badly checked. "But," said we, to the owner "you did not paint your hives, did you, till recently?" "No," said he; "but I am sorry now that I did not paint them at the start. They have been left out in the hot sun, exposed to the weather; and the boards—especially the covers—are warping a little askew." Let us see, Doctor; you admit it is a good policy to paint covers; then why not the rest of the hive? A whole loaf is better than half of one. A hive may stand up just as long without paint but it won't remain bee or robber tight very long.

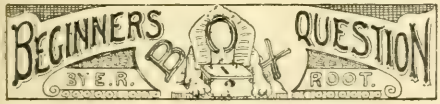
You prefer a cleat at each end at the top, as handles. Well, you can have them. The Dovetail hive is so made that you can have them or not, as you please. But, say; don't you think you could get used to those new hand-holes, and that you would like them fully as well for actual use, to say nothing of their neater appearance, if you were to give them a trial without the cleats?

Yes, the frames do slide very easily on the folded tin rabbet, or "support," as you call it. [Why *didn't* you say "rabbet"?] No, Doctor, there is no danger that the folded edge will cut the top-bar. Even the sharp edge that we have been using for years seems to have but little effect.

About that ⅛ inch end play of the top-bars. All we have got to say, Doctor, is, we have *got* to have it. We do not dare to risk making a tight fit, because the varying conditions of the weather throughout the United States would be sure to make them too tight sometimes. Yes, the bees will chink in a little propolis into our nice clean sections; but neither of them can you help. So far as the top-bars are concerned, they will make no practical trouble.

No, we would have the top-bar of the dummy just a little wider than the boards, for the very reason that it gives the fingers an abutting edge to catch hold of in drawing out. We first tried the dummies with the top-bar the same width as the perpendicular sides; but it was hard to pick them out. That bead on the under side of the top-bar. Your objections look all right in theory; but in actual practice you need have no fear. You certainly will not have spacings 1¼, 1⅜, 1½. If you do not intend to wire your frames, and if you fasten the sheets of foundation to the comb-guide by the melted-wax plan, you might have the unequal spacings you refer to. But if you will refer to our catalog you will see that we recommend rolling the edge of foundation—that is, pressing it against the comb-guide; and this results in crowding the wax over so that it is almost exactly under the comb-guide itself; that is, the comb-guide and the foundation form one continuous line with the top-bar. To be sure that this is so in actual practice, I have just been out into the other room, and measured several lots of frames having foundation put in with that Daisy-Hambaugh roller. The sheets do not vary a sixty-fourth of an inch from being out of the exact center. Then, besides, the wires themselves are threaded through holes that are spaced exactly in the center of the end-bar, in a perpendicular line.

Yes, that wiring by electricity is the only way of doing a nice job, and, to a great extent, it prevents the bees from gnawing around the wires when they have nothing else to do. By the way, Doctor, didn't we send you a battery? We have not had any report from you in regard to its workings.—ED.]



C. M. McC., of W. Va., would like to know what to do with old moldy combs. *Ans.*—Put them in or over a strong colony of bees. They will clean them up and make them sweet in short order. If moldy and worm-eaten, throw them into the solar wax-extractor. If moldy and crooked, put them in the same place. It does not pay to fuss with any thing but straight first-class combs.

E. W. S., of Ala., asks how long burlap covers shall be kept on under cushions for outdoor wintering. *Ans.*—We usually make it a practice to keep the burlap covers on until settled warm weather, say about the middle of May with us. Sometimes we leave them on until the first of June. It is not advisable to change the burlap to enamel cloth very early in the season; in fact, we do not use enamel cloth at all nowadays with the Dovetail hive.

E. N., of Ill., asks if the bees will not store more surplus over drawn combs than over starters only, in the brood-frames. *Ans.*—No. It would rather be the other way, provided that the bees were hived on the starters, and honey was coming in with a rush at the time. If they had drawn combs below, they would pile the honey into the brood-frames, and put in the sections what remained. E. N. also asks whether Italian queens reared in a colony of black bees would not be more prolific. *Ans.*—We do not think it would make any difference.

P. W., of N. Y., writes: "Please tell me what I can put on the separators to keep the bees from fastening the honey to them. They spoil lots of boxes on the new boards." *Ans.*—This is a difficulty that practical bee-keepers find to a slight extent, but, so far as we know, not enough to make any great trouble. In your case it may be that the hive did not stand level; that the foundation was not perfectly centered in the sections, or that the sections themselves did not have wide enough openings. Any and all of these might combine to aggravate comb-attaching.

W. H. C., of Mich., asks, 1: "As I want to Italianize this season, I want to know whether it would be a good plan to introduce strange queens to colonies that have just sent out the first swarm, previously cutting queen-cells, or leave the new queen to tear them down." *Ans.*—We would always advise tearing down the queen-cells. It is true, that the queens to be introduced *may* do it; but you always run the danger of a young virgin hatching out, in which case the bees are liable to take up with their young mistress rather than with their old one, and, of course, the latter is killed. In introducing queens it is *always* safer to tear down the old cells, because, after bees get cells nicely started, they are inclined at times to lay their hopes on them so strong that, when a new queen is introduced, they carry out their original purpose, and the introduced mother is sacrificed. W. H. C. asks further: 2. Would this process prevent after-swarming? 3. If I order queens, and receive them before I need them, how may I keep them alive till I do need them? *Ans.*—2. To a certain extent. 3. You want to manage somehow so as not to receive queens before you want them. You can keep them in small nuclei, however, as explained by Mrs. Atchley on page 407 of our last issue.

GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

Receive my instruction, and not silver; and knowledge rather than choice gold.—Prov. 8: 10.

This number seems to be quite footnoty—eh?

We have just been having some cold rainy weather for four or five days. It is now clearing up, and the bright warm weather gives promise of staying with us.

Mr. Hutchinson, in the last *Review*, says, "Silence is the wit of fools." We always supposed it was the other way; or, as another has said, "Speech is silver, and silence is golden."

Wax has been exported from the country within the past year in large quantities. So much, indeed, has gone abroad that its scarcity is being felt already in this country. At present we are well supplied.

We have been obliged, and are now, to run night and day to keep up on orders, especially for the new polished sections. We are nearly caught up, and are only four or five days behind. The orders that are liable to be delayed are the odd-sized goods; ut by the time this journal is out we hope, with our large force, to get every thing off on time.

A correspondent writes that he has experienced great trouble from the bees attaching bits of comb to wood separators. As this kind of separators is used almost universally now, we should be glad to hear from our readers on this point. We have suggested some of the causes in the department, "Beginner's Question-Box," in another column.

From present indications there is a very poor prospect for California honey this season. There has not, it is said, been sufficient rainfall to guarantee even a fair crop. There is no great loss without some small gain; for eastern honey, on account of the scarcity of the western, ought to bring a good price. There is every reason to believe there will be a large crop of clover and basswood this year.

A subscriber noticing the bees going through a backward and forward motion, or, as some have called it, the wash-board act, at the entrance, asks what it means. This has been asked several times, but no satisfactory answer has yet been given. Almost every practical bee-keeper has observed this peculiar movement, but so far we can only guess. It is generally during a time when no honey is coming in, and, apparently, the bees, for the want of something better to do, are trying to scrub off the paint (or woody fiber, if not painted) at the mouth of the entrance.

We are sorry to announce that *Success in Bee Culture*, a sprightly little monthly at 50 cts. a year, published at Highwood, Ct., is not a success financially, and is now discontinued. Its publisher, Mr. Burton L. Sage, will return the money on unexpired subscriptions. Mr. Sage, we are glad to know, will continue his interest in bees as formerly. The journal took so much of his time for the small return, and having other interests, he was obliged to give it up.

A corner in honey, owing to its scarcity, is what the California dealers are now trying to work up, says the *American Bee Journal*. We are glad if honey is regarded as enough of a staple so that enterprising dealers are trying to get better prices. Never before in the history of the honey business was there ever a general effort, in any one section, if we are correct, to establish "a corner" on our product. We feel safe in saying that bee-keepers will not object very seriously to any thing legitimate that will bring honey up to more like living prices.

We have before us a sample of glucose that can be bought for less that 3 cts., that has none of that disagreeable brassy taste. Honey adulterated with that quality never could be detected by the taste; indeed, it might pass for good honey; but—it would not be honey; and the worst part of it is, consumers *might* pronounce it first-class honey. We shall have to give up to Bro. York, that glucose can not always be detected in honey by the taste. But happily we have chemists who are competent to deal with such stuff, else we should hesitate to write this, for fear a few would make a wrong use of it.

Of the recent discussion on the size of hives, Mr. Hutchinson has this to say:

> Eight-frame hives versus ten-frame hives is being discussed in Gleanings in a way that reminds one of old times. Dr. Miller, R. L. Taylor, C. P. Dadant, and others, are taking a hand. It seems to me the point is just here: When the flow is early and short, as it usually is in this part of the country, the colony in an eight-frame hive gets its combs full of brood, and is ready for sections sooner than is the case with the ten-frame hive, and better results are secured. It is impossible to give a resume of the discussions, and they are too lengthy to copy all of them. It seems to be one of those cases in which you ought to be a subscriber to Gleanings.

We have recently been out among some of the farmer bee-keepers on a bicycle tour, in our vicinity; and, even despite the fact that they are almost, as it were, under the shadow of the Home of the Honey-bees, their frames of the loose unspaced type are spaced all the way from 1⅛ inches to 1¾ inches; and such combs!

They are crooked, bulged, gnawed down, and disfigured here and there with extra pieces of comb as the result of too wide spacing. Over against these, in pleasing contrast, *in the same apiary*, are the self-spacing or Hoffman frames, all, of course, properly spaced. Whatever we may say regarding their special advantages to the expert bee-keeper, they are especially adapted to the beginner or farmer bee-keeper. There was one apiary visited where the loose frames were properly spaced; but it is rare that such is seen.

WE have just received the Second Annual Report of the Illinois State Bee-keepers' Association. It is neatly bound in cloth, and contains 260 pages. Half is confined to the report of the State Bee-keepers' Association; the other half to a report of the North American Bee-keepers' Association, held in Chicago October last. A large amount of valuable matter has been collated. Portraits, also, of some of the most prominent bee-keepers, as well as World's Fair views of honey exhibits and apiarian supplies, grace its pages. The Illinois Bee-keepers' Association is in a most flourishing condition. It has an appropriation of $500 annually from the State, to enable it to get out its reports; and how well the work is done is evidenced by the one before us. We believe it is sent only to members. Any one else may obtain paper-bound copies by sending 8 cts. to the secretary, Jas. A. Stone, Bradfordton, Ill.

SPRAYING TREES WHILE IN BLOOM.

IN some of the agricultural papers it is still advised to spray trees while in full bloom. We might reply to these, but in a certain sense they would consider us a prejudiced authority and therefore hang to the "same opinion still." The better way is for a subscriber to such paper, also a bee-keeper, to send a short courteous reply, calling their attention to the fact that spraying during full bloom not only kills bees but is premature; that the best authorities, including the experiment stations, advise that the spraying be done *after* the petals fall; for it is at that time the injurious insects get in their bad work. The point is here: An editor will accept a correction from a subscriber more readily than from a bee-journal. It may be a little late this season to follow up such cases; but let it be done next season, and don't assume that the "other fellow" will do it if you don't.

IS THE CLOVER MIDGE GOING TO HARM BEE-KEEPERS?

Most of you have seen items in the papers, to the effect that an insect is doing serious damage to the farmers by destroying the crop of clover hay. If I am correct, however, the latest reports of our experiment stations tell us that, right up to the present date, the damage seems to be much less than was anticipated. The enemies of the clover midge were on hand promptly, as is usually the case when most enemies of this kind threaten to prove serious, and, together with the cold rains that have prevailed for the past ten days, the clover now promises fairly well. I believe that, as a rule, this clover midge seldom troubles white clover very much; therefore bee-keepers have little to fear in that direction. With Terry's rotation, and his management of clover, there is but little to fear at any season. And this illustrates again an important fact. It is the slothful, slipshod farmer—the one who is always behind the times, and does not take the agricultural papers, nor keep posted in regard to our experiment stations and their work; it is mainly farmers of this kind who suffer loss from insect-enemies. A full account of how Terry circumvents the clover midge is given in his large book, "Our Farming." A. I. R.

CONTENTS OF GLEANINGS; GOOD ADVICE.

BRO. HASTY, in speaking of the contents of GLEANINGS, has this to say:

> The course of development which this excellent journal has been taking of late is quite plain to be seen. It is, to utilize to the utmost the abilities of a few excellent writers—and overboard into the deep, deep sea with the "let us hear from *all* the brethren" idea. In theory this looks to be wrong; in practice it makes the readable and instructive paper. Only one man out of a thousand can write out what he knows. Pretty much of the rest seem foreordained to write a lot of stuff of no use to any mortal, and leave out the valuable things which they could supply if they would. Strange as this is, it is not unique. Let a thousand men go to the World's Fair, and how many of the thousand can give the loved ones at home even a tolerable account of what they have seen? And writing is a much rarer gift than talking. Nearly every bee-man in a five-minutes' talk will tell things that would be worthy matter for GLEANINGS if properly dished up. Not one of those things will he tell if he sits down to write, but leave them all out, and write something else. Queer, isn't it? Awfully we need a school, or class, or something, to teach the brethren how to write. "What can the man do that cometh after the king?" Don't go after the king then. Don't pour out your crude and imperfect thoughts and notions on a subject which some master hand has just treated nobly well. "And if I chance to fall below Demosthenes and Cicero"—to the dogs with Demosthenes and Cicero! Desire to have one's article sound like "literature" has killed off more bee-writers than all other murrains combined. Have something to say, and say it in your own earnest way. But don't be so silly as to despise literary merit—look out for literary faults; divorce them as fast as possible; and build up a clear, strong, individual style. Literary style is an excellent thing; only don't expect it to pass current without some facts and ideas—don't expect the clothes to walk without a man inside.

As a general thing, old writers have the most practical ideas; but, nevertheless, we are constantly on the watch for something good from any one.

OUR HOMES.

But seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you.—MATT. 6:33.

The conviction forces itself upon me, that in these Home Papers I ought at least to *recognize* the difficulties and troubles that are visiting our United States of America just at the present time. In fact, I believe it is the Holy Spirit that admonishes me that I can not consistently evade or avoid the problems that are confronting so many just now. At the same time, I recognize it is a difficult, and, I might almost say, dangerous, thing, for spiritual teachers or spiritual advisers to undertake to say what men should do or should not do during these times, for, in fact, *more* than human wisdom seems to be needed; and my prayer in thinking of this talk to you to-day has been, "O Lord, help, and give me wisdom that I have not of myself, and that is not human wisdom." In thinking of this, the old familiar text comes up to me again. I have used it so many times that I almost hesitate to use it once more; but yet I am sure that humanity has not yet begun to explore the depths of wisdom contained in the few simple words that compose it—the few simple words spoken by our Lord Jesus Christ. When I undertake to talk on this subject I recognize how easy it is to find fault, and to say that this, that, and the other is the cause of all our trouble; and I am impressed just now that no *one* thing is the sole cause of all our trouble unless that one thing be *sin* in the human heart; and if we put it that way, we are *all* to blame, for God knows we are *all* sinners; and this being true, can we do better than to use that old, old prayer, "Lord, have mercy on *me*, a sinner"?

You will remember that, before these financial and social troubles came upon us, there have come up at different times many innovations and new things in society. The millionaire development is of comparatively recent date. The sudden wealth that demoralized society and individuals commenced, perhaps, with the gold excitement in California. I can remember it well. Then the oil business of Pennsylvania and other States came on the stage, and men got rich suddenly without corresponding effort and years of labor. And right upon the heels of the oil business, or, perhaps, almost at the same time, came our civil war; and it is a little sad to think that men secured colossal *fortunes* during the war, but it is indeed so. Our best and wisest men tried to frame laws to make provision for the unsettled and demoralized conditions of society; but with the best intentions in the world, on the part of our law-makers, sharpers, and those greedy for gain, caught sight of imperfections or loopholes in these laws, and thus secured, fabulous wealth. It got to be a fashion to get rich without hard work; and, oh dear me! I am afraid it is even *now* the fashion to do the same thing; and not only that, but to look down upon people who are depending upon their hard day's work to get to be comfortably off. All these events that I have spoken of seemed to prepare the way for the general dissemination of a sort of gambling mania. Let me illustrate:

Mrs. Root went into a store yesterday. While she was waiting a little to speak with one of the proprietors, a young clerk, with perhaps the best intentions in the world, undertook to entertain her with an account of their gift enteprise. Perhaps I have not got the facts exactly, but it does not matter. Something very much like it is going on, I presume, at this very moment in every town and city of the United States. So many beans, or grains of corn or some other seeds, are put into a bottle, and the customer who guesses nearest the exact number in the bottle is to have—a "house and lot." It seems that long practice and experience in this matter of guessing the number of seeds in a bottle has been worked down so fine that people go and get a bottle of the same size, and fill it with corn. Then they can guess pretty nearly, so as to get the house and lot. This special bottle in question, however, was of such peculiar form and fashion that no one could get another one like it. So this time the thing was going to be fair and honest (?), or more so than similar schemes elsewhere—as if gambling and lotteries and all things of that ilk could *ever* be fair and honest in *any* sense of the word! Now, any one who knows Mrs. Root at all would recognize that she did not want a house and lot, and would not have it under any circumstances unless it were bought and paid for. Do you suggest that she might give it to some poor woman who did want it? Well, my friend, if this would be any better, it is only gambling to help the poor, after all. Such work is certainly in no sense or manner "seeking the kingdom of God and his righteousness." You need not suggest that Mrs. Root has so many houses and lots already that she does not want any more, for she has none at all except the one we all occupy. I have frequently heard her say she would *like* some little houses on suitable lots, to be rented at a low price to poor women; but she has never yet, I am sure, wanted one as a reward for guessing the number of seeds in a bottle.

Now the question arises, How often do merchants and others get any sort of rebuke for this sort of lottery or gambling business? How many Christian people, members of churches, are ready to say, when the thing is presented to them, "No, no, my friend, I do not get things in that way, and I do not *want* them that way. I profess to be a Christian, and I could not conscientiously take any thing without rendering some sort of fair equivalent"?

Even though times are hard—even though thousands of fathers and mothers complain that they can scarcely find money to purchase the bare necessaries of life—notwithstanding all this, lotteries and gift enterprises, and things of that sort, grow and thrive; and it is the poor and needy people who support them. The managers of the Louisiana Lottery Co. have offered *millions*, as you know, for the privilege of working certain territory. Yes, and the saddest part of it is, by some hook or crook they manage to make their millions open the way to work said territory. I am told everywhere it is true. I saw it plainly indicated all over the great city of New Orleans, that it is the *poor and needy*, as a rule, who support this great Louisiana Lottery. The great masses—I was going to say ignorant masses—pinch themselves in the way of food and clothing to get hold of money for this kind of gambling; and not only this, but even members of churches, and fathers of families who have their little farms *heavily mortgaged*, also scrape up money to invest, if not in the Louisiana Lottery, in some other gambling enterprise, with the vain hope that they may *thus* get money to pay off the mortgage, or something of that sort. I am afraid the thing is growing and increasing. Millionaires set the example, or, at least, they are hired to *pretend* they do; and all the way down people follow in their wake because they have no conscientious scruples against taking money or property without rendering some sort of equivalent. I have told you of a scene I witnessed in San Diego, Cal. Real-estate speculation had become a gambling craze. Mechanics who were receiving good wages threw down their tools, and declared with oaths that they were not going to work for a living when people all around them were getting rich, "hand over hand," *without* work.

In a line with this gambling mania is the love of excitement or show, or something *new*. During the beautiful days of the present spring, again and again have great crowds gathered near our public square to listen to certain open-air concerts. They were given in a properly rigged-out wagon; and after the concert some sort of patent medicine was sold. When people are needy, and out of employment, and not at all *sick*, why should they buy medicines under such circumstances? I can not tell. But I am told that the man boasted of how many hundreds of dollars he took from our town. He had excellent singers; yes, I admit they were some of the finest-trained singers I ever heard. He must have paid them considerable sums of money to travel with him from town to town. The music—that is, the melody and their traind voices—was beautiful to hear; but when I topped in passing, to catch the words, what do ou suppose they were? Was there a single ospel hymn? Not one. Was the sentiment f the songs—any one of them—any thing that ould elevate and ennoble? Was there any hought expressed of "the kingdom of God and is righteousness"? Quite the contrary. They were selected and fashioned with the sole view f drawing the people and working them up to pitch where the manager could get their money. The crowd was not composed of men nd boys only. There were women and girls who left their homes and gathered in the treets. Those who could not well go out on he street filled the doors and windows. It was *free* concert, you know. Ah! but you forget, riends. The medicine man received a bigger rice of admission from every one who stood round him than people pay to go to our best oncerts. Some paid a big price. Others did ot pay any thing. Our boy Huber has always een a very obedient child. I have scarcely ver known him to stay out nights—that is, ithout permission. One moonlight evening e went to pay his cousins a visit. As he did ot get back until it was long after his accusomed time, I took my wheel and started after im, wondering mentally what influence could ossibly prevail upon the boy to break his lifeng record of obedience and prompt regularity. When I got in sight of the square I saw the orch-lights over the wagon, and heard a man nging. Huber stood there in the crowd, right p in front, with mouth and ears and eyes wide pen, taking in the whole program—good, bad, nd indifferent. Some of you may say right ere, "Mr. Root, you are too particular; you re too strict and puritanical. You are not up ith the times." Well, come to think of it I uess I am not up with the times—especially e sort of times where thousands upon thounds won't work, or, if you choose, can't work; e times when our police and other officers of e law are (at times) entirely inadequate to ave the laws enforced. I do not want to be with such times. Please let me add, however, at I did not scold Huber a bit. The surundings were more than we could *expect* a ve "boy" to withstand. I laughed and he ughed, to think he had been captured by a reet mountebank. He did not pay out any oney. He has money to do what he pleases th, and there is plenty more he could easily t hold of if he were so disposed. But the y, thank God, is much like his mother, and a hole "house and lot" not his own would be temptation to him at all.

It is not only the medicine man who takes away the people's money, but sharpers who sell half-dollars for 25 cts., and who sell goods at auction, and then give the money back with the goods. An offer of "something for nothing" usually finds many customers. If people were seeking, instead of these things I have mentioned, the kingdom of God and his righteousness, how quickly these sharpers and these great lottery companies would be starved out of business! Yes, if even *Christian* people—members of churches—if they alone, without the rest of the world, could not be *tempted* by offers of "something for nothing," I fear these fellows would have a terribly hard time in making expenses.

Just a word about patent medicines in general. The proprietors of these things get rich. I have seen their princely residences in California. You can find them scattered all over our land. Many of them are millionaires. They get a dollar a bottle for some compound that does not cost them a nickel, bottle and all. Sometimes they boast of it. A certain class of people say that it is all right because they have to pay such enormous prices for advertising. But it is not all right. It is not seeking the kingdom of God, and his righteousness. It is not right to charge your neighbor or anybody else a dollar for what costs you only five or ten cents. It may be legitimate trade and traffic in the eyes of the law, but it is not in the sight of God, and it brings its own reward.

Perhaps in my former writings I have been inclined to ascribe the troubles that are upon us too much to the fact that so many people were lazy or indifferent. If this were true, the burden of the wrong would rest upon the willfully stupid and indifferent class. I think I begin to see my mistake. It rests upon all of us. We are all forgetting the spirit of our text. We are letting *self* take a large part of our thoughts; and the rest of the world—well, we are too much inclined to let *them* take care of *them*selves. And this sort of doctrine, carried out, means "everybody for himself." A vehement young friend in our county jail said last Sunday, "There ain't a lawyer anywhere around who wouldn't tell a lie for a dollar." The above is rather rough on our legal friends, I admit, and I remonstrated with the boy, and got him to take back part of it. I also suggested that people might think he was judging others by himself. Now, I do not believe there are many people who will tell a lie for a dollar; but I am afraid there are quite a few who would *keep still* for a dollar—yes, even if something were going on that they know ought to be stopped. And right here comes in another cause of our troubles. We are having more difficulty at the present time in enforcing law than perhaps at any other time in the history of our country. What is the reason? Well, one reason is, there is not enough public sentiment right back of and close up to our officers to make it easy to enforce the laws. There is no use in blaming our police; there is no use in scoring our lawyers, nor in finding fault with judges, while we are heedless and indifferent, or so intent on our own affairs (buying lottery-tickets, for instance) that we have no time to look after our neighborhood and our nation. A case of intemperance recently came to my notice. I was a good deal disgusted to find that the probability was, nothing could be done to the offenders. The evidence, I was told, was not sufficiently strong and clear. First, the witnesses would probably not testify. Second, if before a jury, the probabilities would be that at least a part of the jury would be more or less given to intemperance, so they would have sympathy with the transgressors. Furthermore, a good many of our judges, so it was said, were disposed, in cases of this kind, to make the way of the "transgressor" *easy*, instead of verifying the Biblical proverb, "The way of the transgressor is hard."

Now, you can tell whether the above state of affairs is true in your community or not. If it is true, then it indicates a general lack all along the line. Instead of seeking the kingdom of God and his righteousness, we as a people (*all of us*) are more or less guilty, because we are seeking selfishness and *ease*. One judge, I am told, suggested to some one who was trying to convict a saloon-keeper, something like this:

"Look here, my friend, some day *you* may be a poor man, and in trouble." The reply was, "Very likely; but if I am, I shall not expect the *courts of law* of our country to do their best to get me out of 'troubles' of *this* kind." One who is seeking the kingdom of God, and his righteousness, needs to be more or less aggressive. He must hurt people's feelings now and then, and he must stand up for the right. Our country needs men like Joshua; and I fear just now there are altogether too many men settling back like Joshua's ten companions, and deciding that the giants of evil are too *many* and too *great*.

Oh! who is there among us, the true and the tried—
Who'll stand by his colors—who's on the Lord's side?

DOCTORING WITHOUT MEDICINE.

HOW FAR MAY OUR DAILY FOOD TAKE THE PLACE OF MEDICINE?

You know how strongly I have recommended the use of milk—especially using that instead of tea and coffee, and much more instead of beer and other intoxicating liquors. Well, I am not going to take back any of it; but I think that, perhaps, I should mention that the continued use of milk in large quantities day after day may not always be advisable. A few weeks ago I was having frequent bilious attacks with my old sick headache, and an exceedingly bad taste in my mouth. In fact, during the middle of these warm days the taste seemed to be almost bitter. Rinsing my mouth with water gave temporary relief; but drinking much water—even soft water from a good cistern—seemed, if any thing, to aggravate the trouble after a little. While riding on the wheel so as to perspire freely and drink copiously, this has mostly disappeared. But I could not afford to take the time to ride thirty or forty miles *every* day. I went to the dentist's and had him examine my mouth to see if there could be any cavities that helped to make the bad taste. He said there was none; but he told me he was aware that a continued use of milk was liable to impart a bad taste to the mouth, etc. I stopped it, and found the disagreeable symptoms almost wholly gone. Is it not something like the principle of the rotation of crops on the farm? Nature seems to call for a "rotation of crops" in diet as well as in farming. Come to think of it, I have several times had an experience quite like that above. After drinking water in place of milk for a week or two the milk seems to answer all right again for quite a long period.

The subject of health and diet comes up frequently in our home, and we are all interested in the subject of health. Pineapples have been quite cheap recently, and one of the girls remarked in my hearing that this fruit unquestionably possessed medical qualities. Well, three or four days ago, even though I had left off the use of milk, I had an exceedingly severe bilious attack. In fact, it gave me such a headache that I could hardly get about to my work that seems to need my presence almost everywhere just now. I first took a good nap. This helped the matter, but the help was of but short duration. Then I tried the internal water cure. This did more good, but the effect of it did not last very long, and about the time we have our early supper (half-past four) I was feeling so miserable that I felt I should have to go to bed unless I got relief. I was thinking about supper; but my feelings revolted at every thing Mrs. Root suggested. When I happened, however, to think of what had been said about pineapples, nature seemed to say at once, "Oh yes! that will be all right. Give us a good lot of pineapple." Now, I am very much averse to medicines of any sort; but if you can call a pineapple a "medicine" it seems to me it would b quite an improvement over the drugstore kind Mrs. Root sliced it up, put on a judiciou amount of sugar, and at my first taste I decide that it just "hit the spot." I ate nearly th whole of a good-sized one, with excellent relish accompanied with a slice or two of very nic bread and butter. The result was somewha astonishing to me. The bad taste in my mout disappeared at once. Before I had finished m meal I felt refreshed all over; the headach gradually disappeared, and the unpleasant feeling that dyspetics understand so well was nearly gone. Mrs. Root and the children suggeste that I always overdid things by making hast to conclude, as a universal rule, that "when little is good, more is better." But it did no prove so in this case. I slept soundly, and m sleep was refreshing. In the morning I rejoiced to feel that I was sound, and ready for business. In the afternoon the same symptom began to be present; but another pineapple fc supper did the business. I remember of thinking, just before I ate the first one, that, if th whole science of medicine furnished any thin that would make me sound and well, say wit in half an hour, or any thing that would satis that intense craving and thirst, it would gi me a faith in medicine that I had never ha before. Well, relief came as I have told you- or, perhaps I might say, my prayer for help an wisdom has been fully answered. But it did n come in the line of doctors' stuffs. It did n come in the line of any patent medicine at dollar a bottle or any other price. It ca simply in the line of a delicious fruit, to found near almost all of our homes. Mrs. Ro suggested that I should go to a doctor and te him my symptoms, for she was sure he wou give me some medicine that would bring relie Well, I have not much doubt he would ha done so. He might have given me some sort physic that would have cleansed the whole d gestive apparatus of every thing—good, ba and indifferent. But the same cause wou have produced the same effect, probably, so after. Perhaps these remarks are a little roug on our medical brethern ; but I guess the mo intelligent of them would agree with me. you can get yourself in good trim by change diet, it is better than to take physic. Is n that so? The good men and women of t world, I am sure, will agree with me. So may object by saying that it is not everybo who can *afford* a pineapple for a meal. Ho on, friends. The pineapple costs 15 cts. Y can not get a good meal anywhere for less tha 25 cts. If everybody can not afford a pineapp they nearly all *think* they can afford to go to doctor when sick. Going to a doctor costs fro $1.00 to $1.50, $2.00 or even $2.50. Yes, we oft pay $2.50 for a very short consultation and pr scription, and in a good many cases we ha to buy our medicine besides that. I am n finding fault, for that is all right. Some of o physicans that doctor with "little pills" (I not mean to complain of them either, mind you) charge only 50 cts. if you pay cash down; and that is very reasonable. But the pineapple costs only *15* cts., instead of 50. Now, this discovery of mine is by no means new. The whole wide world, almost, unites in recommending lemons for biliousness. Well, I used to use a good many lemons; but they do not seem to work nicely in a good many cases—at least, not when I am living on milk largely. The acid seems to be rather harsh. Nature had had lemons until they had got to be an old story.

Do you say that we can not all be so notional about what we eat? Perhaps not; but any physican will tell you that a change of air, a change of scene, or even a change of diet, often does wonders. A near relative of mine was once near the point of death, and I believe she was mostly given up by physicans. After a little, peaches were ripe, and they commenced squeezing the juice out of a few nice ripe ones into a teaspoon, and feeding it to the invalid. She called for it almost continually, and the life-giving nectar built her right up.

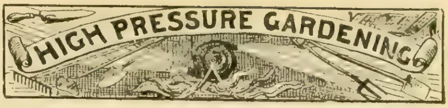
It is almost strawberry time. About the season that strawberries come, they are welcomed by thousands. Thank God, too, that, with the improvements and energy given to the strawberry industry, we are able to *feed the world* with strawberries; that is, we generally succeed in feeding them until the biggest part of them say enough. I have told you something about how I always get well and strong during strawberry time. The strawberry seems to furnish a sort of antidote, or neutralizer, for this bitter element in milk (I wonder if the latter expression is either *sense* or *science*), and therefore I can eat strawberries and drink milk to my heart's content, and grow strong and happy on them. Now, lemons are not just the thing to go with a milk diet; but I know strawberries are—at least, in my case; and my impression is, also, that pineapples would answer safely in the same way.

By the way, some time ago I saw pineapple juice advertised as a medicine. They said it was bottled up where pineapples were grown, and was furnished at a comparatively low price because it was made from fruit that could not well be marketed. Ever since I read that advertisement I have a sort of longing for pineapple cider. I think that is what they call it. I do not like the word "cider," however, because it suggests a fermented beverage; and I am sure my health at least—physical health as well as spiritual—demands the pure fresh juice of the fruits. I am told that grape juice, when properly canned up, just as it is expressed from the ripe fruit, makes a most healthful and nourishing beverage. Now, is there not an opening right here for a big industry in furnishing sick people with a wholesome and cheap medicine in the shape of bottled fruit juices? By the way, if GLEANINGS happens to go into a locality where pineapples grow, will somebody please give some light on this subject? Who can furnish us pineapples and pineapple juice right straight from the producer?

NOTICE TO ILLINOIS BEE-KEEPERS.

The Second Annual Report of the Illinois Bee-keepers' Association is out. Any one who desire a paper-bound copy can have it by forwarding to the secretary 8 cts. to pay postage and wrapping. We shall probably have cloth-bound copies enough to furnish all who may become members of the Association, at any time during the year. None but members are participants in the statistical report gathered during the honey season (at intervals).

Bradfordton, Ill., May 15. JAS. A. STONE.



We have to-day, May 21, picked our first quart of strawberries from the open fields. Of course, they came from Michel's Early. I think I shall continue to grow at least a row or two of Michel's Early, no matter if a great deal of fault is found with it, so long as it continues to furnish us ripe berries before any other variety. We have a dozen plants of the new Rio, but shall not be able to test them fully until another season. The Parker Earle, at present writing, is about the handsomest grower of any thing in the strawberry line. The foliage is a beautiful peculiar shade of green, and the leaves seem to be perfect; and I have never seen any berry blossom more fully than the Parker Earle. The only reason why we do not give it the preference over all others for a fertilizer is because it is exceedingly late. If used together with Michel's Early or some other equally early plant, it would fill the bill nicely; but we hardly wish to be obliged to plant *two* kinds of fertilizing plants with our imperfect-blossoming varieties.

SPRAYING IN A NUTSHELL.

So many questions are being continually asked in regard to spraying mixtures, that, even though it is a little late in the season, I have thought best to copy the following from a recent bulletin from the Ohio Experiment Station:

The following preventions and remedies have been thoroughly tested, and found to be effective in controlling the insects and diseases named, providing directions are followed:

1. Bordeaux mixture—Copper sulphate (blue vitriol), 4 pounds; quicklime, 4 pounds; water, 40 gallons. Put the copper sulphate into a cloth sack and suspend in a bucket of water, as it will dissolve more readily than if put directly into the water. Slake the lime and make a milk of lime, which pour into the copper-sulphate solution, after which add the requisite quantity of water.

2. Copper carbonate—Copper carbonate, 6 ounces; ammonia, 2 quarts: water, 40 gallons. Dissolve the copper carbonate in the ammonia, using sufficient only of the latter to effect solution (ammonia varies in strength, hence the exact quantity required can not be stated), after which dilute.

3. Potassium sulphide (liver of sulphur)—1 ounce dissolved in 4 gallons of water.

4. Paris green or London purple—4 ounces dissolved in 40 gallons of water.

5. White hellebore powder—1 ounce dissolved in 3 gallons of water.

6. Pyrethrum or buhach—1 ounce dissolved in 3 gallons of water.

7. Corrosive sublimate—2 ounces dissolved in 15 gallons of water.

8. Kerosene emulsion—Dissolve ¼ pound hard soap in 2 quarts hot water; add while hot 1 pint of kerosene and mix with a pump; dilute with 5 gallons of water.

For apple-scab, which injures both fruit and foliage, use No. 1, making the first application as the buds are opening, the second just before the time of blooming, the third as soon as the blossoms fall, and the fourth a week or ten days later. To kill the apple-worms, use No. 4 in combination with No. 1 for the third and fourth spraying.

Pear and quince trees should be treated in the same manner. This prevents premature leaf-dropping, scabby fruit, and the work of insects.

For plums and cherries, use No. 1 and No. 4 combined, making four applications, beginning as soon as the blossoms fall, and continuing at intervals of one week or ten days. This prevents premature leaf-dropping, also the work of the curculio. Where a few trees are isolated, the difficulty in combatting the curculio is greater; hence the spraying should be more frequent; in some cases double the amount may be required.

For grapes, use No. 1, beginning when the buds are opening, making four applications; and after the grapes are half grown, substitute No. 2 for No. 1, and apply two or three times until the grapes are nearly ripe.

For currants and gooseberries, use No. 3 to prevent mildew of the foliage, and No. 5 to destroy the worms.

For cabbage-worms, use No. 6.

For potato-blight and the Colorado beetle, use No. 1 and No. 4 combined, making the first application when the plants are not more than six inches high, and continuing at intervals of ten days or two weeks, until the tops are nearly full grown. Not less than five sprayings should be made during the season.

To prevent the potato-scab, soak the seed one hour in No. 7.

For plant-lice use No. 8, beginning before the lice become very numerous.

For rose mildew, use No. 1 or No. 3, and for slugs No. 5.

Numbers 1 and 4 together are used, perhaps, more than any other. Instead of measuring out 40 gallons of water we simply take a kerosene-oil barrel which holds between 40 and 50 gallons. Of course, 50 gallons would answer as well, practically, as 40. The Paris green or London purple is dissolved in a little water, in the usual way, and then added to the barrelful of Bordeaux mixture. For cabbage-worms, for the currant and gooseberry worm. and even for the Colorado beetle, in gardens, I think I would use No. 6; and when you are in a hurry, or only a little is needed, a little of the dry pyrethrum powder, put on with any small powder-bellows, seems to go a good deal further in killing these destroyers than any thing else I ever got hold of. The pyrethrum. however, should be fresh, and kept in an air-tight can or bottle. Either the hellebore powder we have been getting was not of full strength, or else the pyrethrum goes a great way further than hellebore.

WOODEN SASHES TO TAKE THE PLACE OF SHUTTERS.

I saw in a late GLEANINGS your quandary about not having sashes enough to protect your hardy cabbage-plants from which you had taken the sash. Here our truckers carry their cabbage-plants in frames, and in place of sash use battened boards the size of sash. In very cold weather they are down; but in any kind of ordinary weather they are raised and propped up quite high during the day. Of course, they face the south. They get the full benefit of the sun while the battened boards protect from the north. How this would do in your latitude for all winter, experiment alone could tell. I think the risk would be too great. My object in telling you of this is to suggest the idea of providing a lot of battens to supply the place of sash when removed to other frames. They are cheaper than sash, no glass to break, and readily stored away when not in use.

Pawling, Pa., May 8. REV. J. JANEWAY.

[Friend J., we have used shutters in place of sashes quite a good deal; and for temporary protection they answer just as well. They are a good deal lighter, and sustain no damage from breakage, as you say. For raising sweet-potato plants, I think shutters answer every purpose. Where we have long spells of cold weather, however, in our locality, the plants are liable to be damaged unless great pains are taken to give them air by raising the shutters. In fact, I have had plants killed under shutters where they were all right in the same bed covered with glass, both shutters and glass receiving the same handling. Notwithstanding this, however, we find 40 or 50 shutters very convenient indeed; but they need to be absolutely tight and complete, or else they do not protect from frost properly. It has been quite a study for me at different times to decide how best to have them made, and I have finally decided on ½-inch matched pine lumber, having three battens—one near each end and one in the middle, the battens also being ½ inch, and these should be very securely fastened, either by screws or clinch-nails. In transplanting during hot dry weather, they serve an excellent purpose for covering the plants until they have formed sufficient root to bear the direct rays of the sun.—ED.]

WATER-CRESS AND ARTESIAN WELLS.

Water-cress grows in the ditch running from my artesian well. I could get a mess of it at any time during the winter; and I suppose if it had been covered with sash there would have been plenty of it. So far I have found no sale for it at the stores. J. A. GREEN.

Ottawa, Ill., May 5.

[Very good, friend Green; and this is another valuable feature connected with artesian wells. By the way, I have an artesian well down on the creek bottom, but it rises only about a foot and a half above the normal water-level of the creek; that is, it overflows an iron pipe about that height. If I put on more pipe and raise it very much higher, it stops running. The trouble with my artesian well for water-cress is, when we have a big rain the creek rises away above the iron pipe, and washes away the water-cress and my other improvements. I think that, if your cress were properly introduced in the large towns, there would be a steady and profitable demand for it. —ED.]

WHAT VARIETY OF STRAWBERRIES SHALL WE USE FOR A FERTILIZER?

In addition to what comes from our Experiment Station, on page 404, we have the following:

We have long since discarded the Jessie on account of its shy bearing. I would advise the Cumberland as far better, in my experience. Of the new sorts, I am trying the Lovett, which promises to be even more fruitful than the Cumberland. E. M. BUECHLY.

Greenville, O., May 11.

The Governor Hoard is, in my opinion, far superior. The stamens in it are better developed than in the Jessie. The growth of it is not surpassed by any other kind, it being of much more vigorous growth than the Jessie. The latter is always of irregular growth; too many dwarfed plants in the best of land and with perfect attention. The Gov. Hoard is one of the earliest to commence blooming, and one of the last to stop. I have to-day a dozen or more kinds, with ripe fruit, and have a fine selection of strawberries, and have but one kind with more bloom than the Gov. Hoard; viz., E. P. Roe. I have just looked through the whole of them (several acres). It has more blossoms than any other that I have ever fruited, and comes nearer being a perfect fertilizer. Heretofore I have generally planted 2 rows of staminate and 4 of pistillate. In future I will try one Gov. Hoard and 4 pistillate. I am satisfied that all pistillates will be well fertilized thus. Please do not recommend Michel's Early for any purpose, as it is fit only to make fine large crowns and runners. The Gov. Hoard will fruit the earliest and latest pistillates.

Design, Va., May 5. R. J. JONES.

STRAWBERRIES BY THE CARLOAD.

Tell A. I. that this town, Dighton, produces enough strawberries to have a special train, every night, in the picking season, and some-

times we load ten cars, one day's picking, for the Boston market. A. C. CASE.
Hortonville, Mass., May 4.

RAISING RHUBARB, OR PIE-PLANT, WITHOUT CULTIVATION.

You can raise rhubarb as you say, simply by mulching for five or six years; then it begins to grow spindling and small. The best way to get new is to divide up the old roots to one or two eyes, and set out in a new place in sandy soil; at least, this has been our experience, and no doubt it would be yours.
Bowling Green, O. M. C. DIMICK.

Do Not Order

Until you have written us for prices on the "*Boss*" *One-Piece Section.*

PATENTED JUNE 28 1881.

Also D. T. Hives, Shipping-crates, and other supplies.

We have just completed a large addition to our factory, which doubles our floor-room, and therefore we are in better shape than ever to fill orders on short notice. Write for price list.

J. FORNCROOK & CO.,
Watertown, Wis., Jan. 1, 1894. 1-3-5tfd

BIG DISCOUNT on Foundation and Sections. Thin foundation, 50c per lb.; brood, 40c. No. 1 sections, $2.75 per M. Every thing cheap. Price list free.
7-17eoi ***E. H. TRUMPER, BANKERS, MICH.***

GOLDEN ITALIANS.

If you want bees that are large, beautiful, very gentle, and great honey-gatherers, try my Golden Italians. They are pronounced very fine by W. Z. Hutchinson and many others. Satisfaction guaranteed. One untested queen, 80 cts.; three for $2.00. One warranted queen, $1.00; three for $2.50. Tested queens, $1.50 each. Selected tested queens, $2.00 each.
C. M. HICKS, Hicksville, Wash. Co., Md.

☞In responding to this advertisement mention GLEANINGS.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**
1-23a Ottumwa, Ia. South side.

VANDERVORT
COMB-FOUNDATION MILLS.

Send for samples and reduced price list.
1tfd **JNO. VANDERVORT, Laceyville, Pa.**

HURRAH! 1884 to 1894

Has shown me the best bee for our Northern climate. Give me the dark Italians for wintering, for honey, and money. Large, hardy, and industrious. Untested, dark or yellow, $1.00 each. Tested, $1.50. Send for price list. **MRS. OLIVER COLE, *Sherburne*,**
Chenango Valley Apiary. Chenango Co., N. Y.

WARRANTED QUEENS.

Why buy *untested* queens and take your own risk of pure mating, when I warrant every one of my queens to be purely mated? Look over the ads. and see how few *dare* do this. Warranted Golden Italian queen, $1.00; six for $5.00, ready about May 1st. Safe arrival and satisfaction guaranteed.
S. F. TREGO, Swedona, Illinois.

☞In responding to this advertisement mention GLEANINGS.

DID YOU KNOW

That I have the LARGEST STOCK of **BEE-KEEPERS' SUPPLIES** IN NEW ENGLAND?

Consisting of Dovetailed, Simplicity, and other styles of Hives. My brand of XX white thin Foundation, and Polished one-piece Sections, are the nicest on the market.

A full line of every thing needed in the apiary at prices to suit the times.

BEES, QUEENS, and NUCLEUS COLONIES of my old reliable strain, at prices way down.

Send for 34th Annual Catalogue before you buy your stock, remembering the best is always the cheapest.

Address ***W. W. CARY,***
4tf ***COLRAIN, FRANKLIN CO., MASS.***

World's Fair Medal

Awarded my ***Foundation.*** Send for ***free samples.*** Dealers, write for wholesale prices. Root's new ***Polished Sections*** and other goods at his prices. ***Free*** Illustrated Price List of every thing needed in the apiary.
Bell Branch, Mich. **M. H. Hunt.**

TESTED ITALIAN QUEENS, $1.00 each; Select tested, $1.50; untested, 65 cts. Two-frame nucleus, with tested queen, $2.00; with untested queen, $1 50. Queens ready April 1.
Stewart & Cooper, Quebeck, Tenn.

Bee-keepers' Guide.

New edition, just out. This is conceded to be the fullest, most scientific, and one of the best of our American bee-books. Every bee-keeper should have one of the late editions. Price, by mail, $1.25. Liberal discount to the trade.
A. J. COOK, Claremont, Cal.

Golden Wyandottes.

No better birds in America. Cockerel, $5 00. Trio, $7.00. Eggs, $2.00 per setting.
E. D. Keeney, Arcade, N. Y.

BBB'S! ou keep ***BEES,*** subscribe for the ***Progressive Bee-keeper,*** a journal devoted to Bees, Honey, and kindred industries. ***50 cts. per year.*** Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address
LEAHY MFG. CO., HIGGINSVILLE, MO.

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my ***Golden Italians.*** They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. ***Sections, $2. per M.*** Dovetailed hives way down.
CHAS. D. DUVALL, Spencerville, Md.

Daughters of one of ***Doolittle's very best*** golden five-banded breeders, mated to the very choicest drones from ***Jennie Atchley's*** 5-banded strain, thereby securing a direct cross with the best 5 banded stock obtainable. My aim is to rear nothing but the best, regardless of cost. Untested, 75c; ½ dozen, $4.25; dozen, $8.00. Safe delivery and satisfaction. Money-order office, Monongah. P. O. address, Worthington, W. Va. Queens ready May 25. ***L. H. Robey.***

For Sale.

30 colonies of Italian bees in A. I. Root's eight-frame Dovetailed hives, in good condition. Safe delivery guaranteed. ***JOHN GRANT.***
Batavia, Clermont Co., O.

WHY

Can we sell warranted queens for 80 cts. each?

BECAUSE

Only 1½ per cent are mismated, and have to be replaced. Tested queens, $1 each; untested, 75 cts.; $8.00 per doz.

J. W. K. SHAW & Co., Loreauville, La.

FOR SALE.

I have 71 warranted Italian queens, reared in full colonies, now ready to mail at $1.00 each. If not satisfactory, return her and get another without further charge.

R. A. HARDY, Lampasas, Texas.

Look Here, Bee-keeper!

If you are in need of some bee-supplies, write for catalogue and price list. Every thing sold as cheap as the cheapest. **W. E. Smith.**
Kenton, Hardin Co., O.

WILLIAM HEASTMAN, CITRA, FLA.,

Breeder of the celebrated "Orange-blossom" Italian Bees and Queens. Untested, 75 cts.

Bees and Queens.

Select tested queens, from imported mother, $1.50 each; untested, 90 cts. each; 2-frame nucleus, with untested queen from imported mother, both frames containing brood and all adhering bees, $2 00. Bees by the pound, 90 cts. Satisfaction guaranteed. Will be ready to ship May 15. **MRS. A. F. PROPER,**
Portland, Jay Co., Ind.

5000 Golden Queens in 1894.

1 untested queen by mail	$1 00
6 untested queens by mail	5.00
1 2-frame nucleus	2 75
2 2-frame nuclei	5 00

Untested queens with nucleus. Satisfaction in all cases. Send for sample of bees.

J. F. MICHAEL, German, Darke Co., O.

Attention! Bees for Sale. Full colonies and nuclei. Good stock; Langstroth frames. Write for prices.
H. Lathrop, Browntown, Green Co., Wis.

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds
W. Atlee Burpee & Co., Philadelphia, Pa

WE WILL PREPAY

Freight charges on orders for Root's polished sections, and 16-section white basswood shipping-cases, at his prices, to be shipped from factory to points within 300 miles, in lots of 5000 and 200 or over respectively. Send for catalog.
B. WALKER, Evart, Mich.

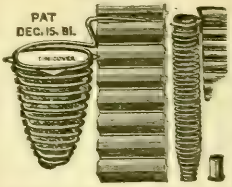
MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

Control Your Swarms, Requeen, &c.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. 12 Cell-protectors, 60c; 100, $3. 12 Cages, $1.00; 100, $5, by mail. Circular free. Address N. D. WEST, Middleburgh, Scho. Co., N. Y. Sold also by all the leading supply-dealers.

I have one of the choicest flocks of
Brown Leghorns in the State.
Keep no other kind. Eggs, 75c per 15; $1.25 per 30.
B. G. SCOTHAN, Rogersville, Mich.

EGGS For Hatching. S. C. B. Leghorns, Silver Wyandottes, B. and W. Minorcas, P. Rocks, Langshans, $1.00 per 13; Y. Wyandottes, I. Games, Red Caps, S. S. Hamburgs—Eggs, $2.00 per 13. No circular. AUGUST GOETZE & SON.
3822 WOOD ST., WHEELING, W. VA.

Italian Bees and Queens

Ready in May. Queens, $1.00; bees by the lb., $1.00; 1-frame nucleus, $1.25; 2-frame, $2.25. Also Barred P. R. eggs for setting, 15 for $1.00.
Mrs. A. A. Simpson, Swarts, Pa.

ITALIAN QUEENS.

Both three and five banded. Tested, $1.50; three for $4.00. Extra select breeders, $2.00; three for $5.00. Untested, $1.00; three for $2.50; six for $5.00; twelve, for $8.00. Safe arrival guaranteed or money refunded. Orders booked now, and pay when you want queens. ***C. F. BECKEY,***
MANITOU BEACH, LEN. CO., MICH.

STRONG, FULL COLONIES

of Pure Italian Bees, in Root's new Dovetailed hive, after June 1, only $4.00 each.

N. A. KNAPP, Rochester, Lorain Co., O.

BEE-MEN, Get free Price List of Apiarian Supplies.
F. N. JOHNSON, Knoxville, Ill.

I Will Exchange

For your name and address, my pamphlet "How I Produce Comb Honey," and catalog of Chaff and Dovetailed hives, T Supers, Sections, Foundation, and every thing needed in the apiary. First-class goods, and prices reasonable.

Geo. E. Hilton,
Fremont, Mich.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,
12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis

SPECIAL NOTICES FROM BUSINESS MANAGER

SLICED WOOD SEPARATORS.

We have sold all the clean slotted sliced separators, 18 inches long; but still have a supply slightly discolored with mildew, 4½x18 at 25c per 100; $2.00 per 1000. 4½x17, clean and bright, for combined crates, 25c per 100; $2.00 per 1000; 3½x17 or 17¼, sliced, good clean stock, 20c per 100; $1 50 per 10 0. 3½x18, or any length we can cut from it, 25c per 100; $1.75 per 1000.

BEESWAX.

We have two lots of wax received with no name to tell whom they came from, and no notice in the mail advising us, so we can not give credit till the parties who sent it complain of not receiving returns. *Moral.*—Never send any wax, nor any thing else, here or elsewhere, without your name or mark to identify; and never without sending a notice at the same time by mail.

SIX-INCH FOUNDATION-MILLS AT $12.00.

We have some ten or twelve 6-inch foundation-mills, new, far superior to those we sent out a few years ago, yet hardly suitable for making extra thin surplus foundation. They will work nicely in making surplus foundation 10 sq. ft. to the lb., and would do fairly well for light brood, half-sheets, or starters. To work down this stock of mills we offer them at $12.00. If you would prefer a sample of foundation made on them, before ordering, we shall be pleased to send it on request. After this season the price of our best 6-inch mills will be $18.00.

JAPANESE BUCKWHEAT.

Since our last issue we have received quite a number of offers of Japanese buckwheat and have bought one or two lots. All ask pretty high prices, however, and the lowest retail price we have seen lately is $1.50 per bushel · the price we made in last issue. We will furnish it at 50c per peck; 85c per half bushel; $1.50 per bushel, or $2.80 for 2 bushels; $13.50 for 10 bushels, bags included in each case. We have offers in Barry, Ill.; Saybrook or Cleveland, Ohio; Buffalo, N. Y.; and Factoryville, Pa; and until these lots are sold could order shipped from any of these points direct to customers located near these places. We have some in stock here, and can get more on short notice to furnish at prices named above.

OLD-STOCK SECTIONS.

Our supply of old-stock sections is pretty nearly all gone. At our last count we find the following.

13,000 4¼x4¼x1 15/16, open four sides.
7,000 " " 1 15/16, open top and bottom.
3,500 " " 1 15/16, closed top.
3,000 " " 1¾, open four sides.
8,000 " " 1¾, open top and bottom.
5,500 " " 1¾, closed top.
3,000 " " 7 to foot, open four sides.
7,000 " " 7 to foot, closed top.
12,500 " " 1½, open four sides.
22,000 " " 1½, open top and bottom.

Our price on these, as heretofore, is $2.50 per 1000; 2000 for $4.50; 3000, $6 50; 5000 for $10.00. The 1½-inch seems to be in less demand, and on this width only we will cut this price 50 cts. per 1000, in order to move off the stock before the season closes. This is a bargain to any who can use this width. We will also make the same reduction in this width only, in our extra polished sections, of which we have over 100,000 in stock, and they are extra nice. Remember, then, the price of 4¼x4¼x1½, old stock, is $2 00 per 1000; $3.50 for 2000; $5.00 for 3000, or $7.50 for 5000; and the same size, extra polished, will be $2.50 per 1000; $4 80 for 2000; $7.00 for 3000; or $11.00 for 5000. Our cream, or No. 2 grade, of other widths, as we make them, we sell at this latter price. We have of 4¼x4¼x2, open four sides, No. 2, 7000, which we offer, to close out, at $1.50 per 1000; also about 2000 of the same, open top and bottom.

We now have plenty of 4¼ x 1⅞ in. cream, or No. 2 sections, at $2.50 per 1000 for those who want them.

CARLOAD SHIPMENTS.

Since the three carloads mentioned in our last we have received an order for a second carload from Walter S. Pouder, Indianapolis, Ind., and a fourth car to our Eastern depot, with F. A. Salisbury, Syracuse, N. Y. These carload orders, with the multitude of smaller ones, have crowded us so that, for the past two weeks, we have been running our wood-working department night and day, with two forces of men. For a time, orders were delayed several days longer than usual; but we have gotten the upper hand, and they are now moving out with our usual promptness. We are, fortunately, located within hauling distance of a coal-mine which is still in operation, and we make shavings and waste enough to keep steam most of the time, so that we have to burn very little coal. We have heard of one railroad in Canada which is handling only perishable freight, owing to shortage of coal; but we trust the differences may be adjusted before other lines are compelled to a similar course.

VEGETABLE-PLANTS, ETC., FOR JUNE.

Well, friends, we have a splendid stock of every thing in those plant-beds, and can give you extra low prices on some of the stuff. First, we have any quantity of extra fine transplanted cabbage-plants, as follows: Jersey Wakefield, raised from March's seed; Henderson's Early Summer; Fottler's Brunswick, and Excelsior Flat Dutch. Until further notice we will sell any of the above for $2.00 per 1000, or $17.50 for 10,000. We also have March's Early Snowball cauliflower-plants—nice strong ones—for 60 cts. per 100, or $5.00 per 1000.

Prizetaker onion-plants, extra fine, for 75 cts. per 1000, or $5.00 for 10,000. Extra strong Globe Danvers plants, same price.

Celery-plants, Golden Self-blanching, or New Rose, $2.50 per 1000, or $20.00 for 10,000.

Pepper-plants, Bullnose, Spanish, or Ruby, $1.00 per 100, or $9.00 per 1000.

Sweet-potato plants, $2.00 per 1000, or $17.50 for 10,000. If wanted by mail, add 25 cts. per 100 additional for postage, on all the above plants. The above prices are *special* for immediate orders *only;* and in ordering please say, "As per special offer of June 1."

Strawberry-plants, we prefer not to send out during the month of June; but we expect to have nice new well rooted plants to send out in July.

We are prepared to give extra low prices on cucumber seed for pickle-factories. During the month of June will be the time to plant for pickles. Special prices on large quantities of seed on application.

The month of June is also probably the best time to plant bush lima beans. If you have any waste ground, it will probably be a good investment to plant bush limas. They are always valuable for table use if the price should be low for seed. You see, there can not be any loss. Sell as many as you can while they are fit for table use, while green; and if not all used you will have them to sell for seed, or for table use dry.

I hardly need tell experienced gardeners that almost any thing in the seed catalog will produce a crop if put into good ground during the fore part of June. We still have a limited quantity of Freeman and Monroe Seedling potatoes. We are going to plant our own Freemans about the first week in June.

TIMBREL STRAWBERRY-PLANTS.

We have now got nicely rooted *young* plants that were started in our plant-beds, and we can supply a limited number of them at 20 cts. each, or $1.50 for 10, postpaid by mail. With only a single plant, so early in the season, you may be able to have quite a stand of Timbrells before snow comes again.

KIND WORDS FROM OUR CUSTOMERS.

The goods are as fine as can be made. They are just splendid. H. D. FRIEND.
Douglas, O., May 3.

I think the ad't in GLEANINGS sold not less than 100 bbls. of sweet potatoes and yams to new customers; besides, I find the GLEANINGS people straight and pleasant, without exception. L. H. MAHAN.
Terre Haute, Ind., May 1.

The Crane smoker is a good one, and the roll of netting all right. **FRIEDMANN GREINER.**
Naples, N. Y., April 27.

GLEANINGS is our household companion. I do not want to be without it as long as I live. It has done me better service than all other journals combined. **JAMES M. SMITH.**
Perkiomenville, Pa., April 23.

WORKMANSHIP FIRST-CLASS.

The bill of goods shipped to me March 21 was received in prime order. The workmanship and material are first-class. I have had several consignments from you, all of which have been satisfactory. **JOHN NORTON.**
Millview, Pa., April 28.

CHEAP VS. GOOD HIVES.

I should like to have your catalog for this year. I have a friend who is about to get bees, and I want to recommend your hives. I have been getting my hives from —— ——. They are cheaper, but not nearly as good as yours. **SIDNEY HARRIS.**
Prosser, Neb., April 20.

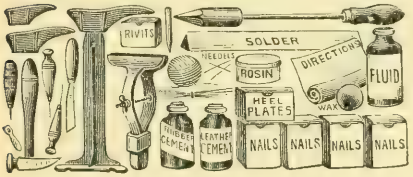
CONVENTION NOTICES.

There will be a meeting of the Southeastern Kansas Bee-keepers' Association held June 15, 16, '94, at the apiaries of J. C. Balch, seven miles south of Bronson, Kan. All are respectfully invited. J. C. BALCH, Sec.

We can furnish goods below, made by Root Brothers, Medina, O.

Root's Home Repairing Outfit.

ENLARGED, REMODELED, AND GREATLY IMPROVED.



Consisting of 28 First-class Tools and Materials shown in cut, viz.:

1 Iron Last, 10 inches	.45
1 Iron Last, 8 inches	.40
1 Iron Last, 6 inches	35
1 Iron Standard with Base	.15
1 Pkg. Assorted Nails	.05
1 Pkg. $\frac{4}{8}$ Wire Clinch Nails	.05
1 Pkg. $\frac{5}{8}$ Wire Clinch Nails	.05
1 Pkg. $\frac{6}{8}$ Wire Clinch Nails	.05
½ Doz. pairs Star Heel Plates	.10
½ lb. Copper Rivets	.15
1 Steel Punch	.10
1 Sewing Awl, Complete	08
1 Pegging Awl	.08
1 Wrench for Above	.01
Directions for Using.	
1 Stabbing Awl, complete	.08
1 Shoe-Knife	.10
1 Shoe-Hammer	.15
1 Bottle Rubber Cement	.12
1 Bottle Leather Cement	12
1 Ball Wax	.02
1 Ball Shoe Thread	.10
1 Bunch Bristles	.05
1 Harness and Saw Clamp	50
4 Harness Needles	.04
1 Soldering-Iron	.35
1 Bottle Soldering Fluid	.10
1 Box Rosin	.10
1 Bar Solder	10
Total	.$4 60

These tools when purchased separately at a hardware store would cost over $6.00. We furnish these Outfits in three numbers:—

No. 1 contains all the tools mentioned above, complete, weight 18 lbs. Price $3.00.

No. 2, same as No. 1, except Soldering Tools, Harness Clamp, Rivets, and Punch. Weight 14 lbs. Price $2.00.

No. 3 consists of 3 Iron Lasts and Standard, for half-soling only. Price $1.00.

Special terms to agents. Full descriptive circular and terms on application to

A. I. ROOT, MEDINA, OHIO.

Books for Bee-Keepers and others.

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults, so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines,‡; foreign,§. The bee-books are all good.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well by the amount required for postage on each.

8	Bible, *good print*, neatly bound	20
10	Bunyan's Pilgrim's Progress**	30
20	Illustrated Pilgrim's Progress**	75

This is a large book of 425 pages and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25c more.

6 | First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50 c. Two copies will be sold for 75 cents. Postage six cents each.

5	Harmony of the Gospels	35
3	John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*	10
1	Gospel Hymns, consolidated Nos. 1, 2, 3, and 4, words only, cloth, 10 c; paper	05
2	Same, board covers	20
5	Same, words and music, small type, board covers	45
10	Same, words and music, board covers	75
3	New Testament in pretty flexible covers	05
5	New Testament, new version, paper covers.	10
5	Robinson Crusoe, paper cover	10
4	Stepping Heavenward**	18
15	Story of the Bible**	1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

5	The Christian's Secret of a Happy Life**	25
8	Same in cloth binding	50
	"The Life of Trust," by Geo. Muller**	1 25
1	Ten Nights in a Bar-Room, T. S. Arthur*	05
5	Tobacco Manual**	45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy that reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

Postage		[Price without postage.
15	A B C of Bee Culture. Cloth	1 10
5	A Year Among the Bees, by C. C. Miller	45
	Advanced Bee Culture, by W. Z. Hutchinson	50
3	Amateur Bee-keeper, by J. W. Rouse	22
14	Bees and Bee-keeping, by Frank Cheshire, England, Vol. I.§	2 36
21	Same, Vol. II.§ r	2 79
	or, $5.25 for the two, postpaid.	
	Bees and Honey, by T. G. Newman	1 00
10	Cook's New Manual. Cloth	90
5	Doolittle on Queen-Rearing	95
2	Dzierzon Theory	10
3	Foul Brood; Its Natural History and Rational Treatment	22
1	Honey as Food and Medicine	05
15	Langstroth Revised by Ch. Dadant & Son	1 25
10	Quinby's New Bee-Keeping.	1 40
	Thirty Years Among the Bees, by H. Alley	50
4	Success in Bee Culture, by James Heddon	46
	Handling Bees, by Langstroth. Revised by Dadant	08
	Bee-keeping for Profit, by Dr. G. L. Tinker	25
5	The Honey Bee, by Thos. William Cowan	95
	British Bee-Keeper's Guide Book, by Thos. William Cowan, England§	40
3	Merrybanks and His Neighbor, by A. I. Root	15
4	Winter Problem in Bee-keeping, by Pierce	46

MISCELLANEOUS HAND-BOOKS.

3	A B C of Potato Culture, ** New Edition	35

This is T. B. Terry's first and most masterly work. The book has had an enormous sale, and has been reprinted in foreign languages. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. It has 122 pages and 37 illustrations.

5	A B C of Carp Culture, by Geo. Finley	35

5 | A B C of Strawberry Culture** 35

The above book by T. B. Terry, with some additional remarks by A. I. Root, is, at the present time, creating an enthusiasm and interest in strawberry culture never known before. It is a book of 144 pages and 32 engravings, and it is fully up to the times.

5 | An Egg-Farm, Stoddard**.................. 45
| Amateur Photographer's Hand-book**..... 70
| Barn Plans and Out-Buildings*.............. 1 50
| Canary Birds. Paper,........................ 50

2 | Celery for Profit, by T. Greiner**........... 25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once, without any assistance except from the book.

| Draining for Profit and Health, Warring.. 1 50
10 | Fuller's Grape Culturist **..... .... 1 40

| Farming For Boys*.... 75

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

7 | Farm, Gardening, and Seed-Growing**..... 90

This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages.

12 | Gardening for Pleasure, Henderson*....... 1 85

While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 404 pages and 203 illustrations.

12 | Gardening for Profit, new edition**........ 1 85

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts.

| Gardening for Young and Old, Harris**.... 1 25

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

10 | Garden and Farm Topics, Henderson**.... 75
| Gray's School and Field Book of Botany... 1 80
5 | Gregory on Cabbages; paper*................ 25
5 | Gregory on Squashes; paper*................ 25
5 | Gregory on Onions; paper*................... 25

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

10 | Greenhouse Construction**.................. 1 40

This book, by Prof. Taft, is just out, and is as full and complete in regard to the BUILDING of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

15 | How to Make the Garden Pay.**.......... 1 35

By T. Greiner. This is a new book, just out, and it gives the most explicit and full directions for gardening under glass of any book in the world. Those who are interested in hot-beds, cold-frames, cold-greenhouses, hot-houses or glass structures of any kind for the growth of plants, can not afford to be without the book.

| Handbook for Lumbermen.................. 10
10 | Household Conveniences. 1 40
2 | How to Propagate and Grow Fruit, Green* 15
2 | Injurious Insects, Cook.............. 25
10 | Irrigation for the Farm, Garden, and Orchard, Stewart*........ .... 1 40

This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

5 | Manures; How to Make and How to Use them; in paper covers.................... 45
6 | The same in cloth covers.................... 65

Covering the whole matter, and discussing every thing to be found on the farm, refuse from factories, mineral fertilizers from mines, etc. It is a complete summing-up of the whole matter. It is written by F. W. Sempers.

7 | Market-gardening and Farm Notes, by Burnett Landreth 90

The Landreths are the pioneer seedsmen of America; and the book is worth fully as much as we might expect it to be. I think I received hints from it worth the price, before it had been in my hands fifteen minutes. It is exceedingly practical, and tells what has been done and what is BEING done, more than it discourses on theory.

3 | Maple Sugar and the Sugar-bush**......... 35

By Prof. A. J. Cook. This was written in the spring of 1887 at my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the latest and best method of managing to get the finest syrup and maple sugar, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts.

| Our Farming, by T. B. Terry**..... .... $2.00

In which he tells "how we have made a run-down farm bring both profit and pleasure."

This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming before the world at the present day. The price is $2.00 postpaid; or clubbed with GLEANINGS for 2.50. Those who are already subscribers to GLEANINGS may have it postpaid by sending us 1.50 more. We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, 10c less.

3 | Onions for Profit **........ 45

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterize its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

1 | Poultry for Pleasure and Profit**.......... 10
11 | Practical Floriculture, Henderson* 1 35
10 | Profits in Poultry*..... 90
2 | Practical Turkey-raising.................. ... 10

By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.

4 | Peabody's Webster's Dictionary.......... ... 10

Over 30,000 words and 250 illustrations.

2 | Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character 15

This little book ought to be worth dollars instead of the few cents it costs to any one who has ever been troubled with these pests, and who has not? It is written in such a happy vein that every member of the family will read it clear through, just about as soon as they get hold of it. It contains a complete summing up of the best information the world can furnish.

1 | Silk and the Silkworm........................ 10
10 | Small-Fruit Culturist, Fuller........ .... 1 40
10 | Success in Market-Gardening*... 90

This is a new book by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

| Ten Acres Enough.................. .. 1 00
| Talks on Manures*........... .. .. 1 75

This book, by Joseph Harris is, perhaps, the most comprehensive one we have on the subject, and the whole matter is considered by an able writer. It contains 366 pages.

2 | The Carpenter's Steel Square and its Uses. 15
10 | The New Agriculture; or, the Waters Led Captive.................... 75
2 | Treatise on the Horse and his Diseases..... 10
5 | Tile Drainage, by W. I. Chamberlain....... 35

Just out. Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in this book, one man will often do as much as two men without this knowledge. The book embraces every thing connected with the subject, and was written by the author while he was engaged in the work of digging the ditches and laying the tiles HIMSELF, for he has laid literally miles of tile on his own farm in Hudson, O.

5 | Tomato Culture.................................. 35

In three parts. Part first—by J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second—By D Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general. This little book is interesting because it is one of the first rural books to come from our friends in the South. It tells of a great industry that has been steadily growing for some years past; namely, tomato-growing in the South to supply the Northern markets. The little book, which is fully illustrated, gives us some pleasant glimpses of the possibilities and probabilities of the future of Southern agriculture. Even though you do not grow tomatoes to any considerable extent, you will find the book brimful of suggestions of short cuts in agriculture and horticulture, and especially in the line of market-gardening.

3 | Winter Care of Horses and Cattle.......... 35

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects of the Microscope**.......... 47
8 | What to Do and How to be Happy While Doing It, by A. I. Root.................. 50

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The 3x6 inch Mesh is suggested for sheep-enclosures; the 4 x 8 for cattle and hogs, and the 5½ x 10½ for a very low-priced fence for any purpose named.

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32 in.	Rod, 52 c	34 in.	Rod, 44 c	36 in.	Rod, 38 c
38 in.	Rod, 60 c	42 in.	Rod, 51 c	47 in.	Rod, 44 c
50 in.	Rod, 72 c	50 in.	Rod, 57 c		

All widths put up in bales 20 rods (330 feet) long.

A higher price charged for lengths shorter than a full bale. Shipped direct from Chicago or New York.

What we wish to call your attention to especially is the following list of pieces and short rolls which we can sell, to close them out, at *less than full-roll prices.* In this list are some full rolls and pieces of sizes which the factory have discontinued making, and for that reason they offer them at a sacrifice to clean up the stock of odds and ends.

The above, you notice, is woven from galvanized wire, while you will find the most of the following list is 4x7-inch mesh, galvanized after being woven, and on that account very much superior, and more expensive to make. It formerly sold for about double the prices named below. It has also one number heavier wire in the meshes than the rest, being No. 13 wire throughout. All other sizes are made of No. 14 galvanized wire, woven in the meshes, and a 3-strand rope of No. 13 wire for selvage, except the 4x8, which has No. 10 wire selvage.

The wide fencing is designed to be put up alone, while the narrow widths are used at the top or bottom in connection with barb-wire or other strand fencing. Much narrow is used at the bottom of posts for hogs and sheep, while for horses and cattle it is often used at the top of posts in place of a board or rail.

All the fencing in the list, except the last few lines, is in stock in Chicago and New York, and shipments will be made from these points. That you may know what is in stock at each place we have inclosed within brackets [ ] all the stock in New York; and what is not so inclosed is at Chicago. The length of the pieces is given in feet, and the price per foot as well as per rod. This fencing is usually sold by the rod; but for convenience in ascertaining the cost of each piece we have given also the price per running foot, and you have simply to multiply the combined length of the pieces you require by the price per foot to get the cost. We get an additional discount if ordered in lots of 10 pieces; and, therefore, if you can use so much you can secure this fence at a price which is below what new regular stock in above list costs us at wholesale. The freight from New York to Chicago in 100-lb. lots or more is only from 2 to 5 cts. per rod; so if any of our western customers desire some of the New York stock they need not refrain from ordering on account of freight charges.

In the following table the width in inches is given in the first column; size of mesh in second; price per rod in third; price per linear foot in fourth and a list of the pieces, with length in feet, in fifth

Inches. Wide	Mesh	Price. Rod	Ft.	List of Pieces, and Length in Feet. Multiply by price per foot for cost.
22	4 x 11	28	.1¾	[330]
26	4 x 11	33	2	2 bales, 20 rods (330 ft.) each. [330, 330.]
50	"	55	.3⅓	15. [330.]
25	5 x 11	33	.2	8, of 36 in. at 2¼ c.; 52, 43, 38, 160.
47	"	.44	.2⅔	230, 60. 38, 27, 75, 323
14	4 x 7	27	1⅔	330, 330, 206, 108 [198].
18	"	33	.2	261. 32 [145, 105]; of 22 in. at 2 c., 50 [297].
26	"	.37	2	102 35 10, 11 [148, 95, 59, 50].
30	"	.41	2½	144. 50, 25, 25 [188].
34	"	.44	2⅔	90, 80, 48, 44. 43, 25, 17, 14.
38	"	.49	.3	34, 29. 20, 13, 9.
42	"	.50	.3	25, 130
62	"	.66	.4	[330, 317].
66	"	.70	4¼	[330.]
14	4 x 8	.27	1⅔	[1 bale, 20 rods (330 ft.) each].
22	"	33	.2	[4 bales, 20 rods (330 ft.) each].
42	"	50	3	[2 bales, 20 rods each, and 135 ft.]
20	3 x 6	.38	2⅓	250 ft.
26	3 x 6	.45	.2¾	21, 119, 45 [150, 150, 95].
44	"	.66	.4	165, 24, 4½, 4½, 4½.
38	"	58	.3½	19, 14 49½, 81, 66, 27.
50	"	.72	4⅓	14, 4, 155.
				ON HAND HERE AT MEDINA THE FOLLOWING
14	4 x 7	.27	1⅔	166, 52, 35.
22	"	.33	2	107. 68, 35, 15.
30	"	41	.2½	52, 47, 36, 33, 30, 29, 19, 18, 13.
34	"	.44	2⅔	25, 18.
42	"	.50	.3	68, 8, 6.
18	8 x 13	25	.1½	68, 36 in., 200 ft. at 3 c.; 45 in., 247 ft., 3¾ c.

In lots of 5 pieces, 5 % off. Not less than 10 pieces in one o der, 15 % off from above prices; 20 pieces or more, 20 % o from prices in this last table only. Staples, 1¼ in., 5 cts. per l

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SHORT ROLLS AT FULL-ROLL PRICES OR LESS.

We have the following lot of wire netting of var ous sizes and widths in short or odd-length roll Very often a person wants a piece and can not bu it cut from a full roll without paying double pric You may be able to find in this list just what yo need, or very near it. Even if you want more tha a full roll you will find the prices at which we offe these to be in most cases less than full-roll price.

Of 2-inch mesh No. 19 wire, we have the followin remnants and short rolls at ⅗ c per square foo The figures at the left give the width in inches, an the other figures give length of each piece in fee Multiply this by the width in feet, then take thre fifths of the result to find the price of each piece.

12	70.
18	60 135, 138.
24	69 78.
30	45, 60, 64, 65. 70. 95. 100, 107, 123. 140. 144. 146. 148
36	19 38, 40, 40, 47. 49, 50, 52, 53, 54, 55 60, 65, 67. 70, 72. 73. 82 82, 83, 83, 83. 86 89, 90, 92, 93. 94, 96, 96, 96, 99, 100 100, 100, 100, 160.1 102, 102 103, 105 105, 107 114, 115, 116, 116, 116, 118, 120, 120, 1 124, 124, 128, 129, 141 141, 145.
42	131.
48	12, 24 35, 62. 75, 75, 83, 83, 86, 87, 94, 98, 100, 108, 114, 113, 119. 122, 1 124, 125, 128 131, 132, 134, 135, 138, 138. 138, 140, 140, 140, 143, 144, 14 144, 144, 144. 145, 145, 145, 145, 146, 146, 148.
54	72, 88. 88, 143.
60	36 78 81 81, 89, 91, 92 94, 103, 107, 108, 110, 110, 119, 120, 122, 126, 1 134, 136, 139, 139 144, 146.
72	20 26, 29, 40 40, 47, 48, 60, 61, 62, 64. 72, 75, 81, 82, 85, 85, 87, 100, 1 108, 112, 119 120, 123, 124, 127, 129, 130, 138 144, 144, 144, 148.

Of 2-inch No. 20 we have the following pieces at one-ha of a cent per square foot. Arrive at the price in precisely t same way as above, taking half of the number of square fe instead of three-fifths, to get the price in cents.

24	94, 114, 116.
30	129 140.
36	36, 39. 40 41, 81, 88. 91. 94, 100, 103, 103, 109, 120, 122, 126, 126, 12 128, 128, 128, 134, 136, 136, 140, 146, 146, 147.
54	145.
60	17, 130. 136, 139, 144, 144.
72	44, 45, 58, 70, 75, 76, 100, 137, 139.

In the following list we give first the size of mes next, the number of wire; next, the width in inche then the length in feet, and, finally, the price the whole piece, so you will have no figuring to do.

¾ in., No. 19, 34 in x 126 ft , at $4 25.
1¼ in. No. 18, 48 in. x 80 ft., at 4.20.
1½ in., No. 16, 30 in. x 70 ft., at 3.15.
2 in., No. 15, 18 in. x 73 ft., at 1.65; 18 in. x 74 ft. at $1 70.
2 in., No. 15, 18 in. x 55 ft., at 1.35; 54 in. x 122 ft. at $8 00.
2 in., No. 15, 60 in. x 20 ft., at 1.50; 72 in. x 36 ft., at $3.00.
2 in., No. 15. 72 in. x 33 ft., at 3.00.
2 in., No. 16, 72 in. x 36 ft., at 2.50; 72. in x 60 in., at $4.00.
2 in., No. 16, 72 in. x 58 ft., at 3.80.
3 in., No. 14, 72 in. x 70 ft., at 6 20; 72 in. x 100 ft., at $8.80.
1½ in., No. 19, 2 ft. x 48 ft., at .75; 3½ ft. x 32 ft., at .80.
4½ x 20 ft. at .70; 5 x 19 ft. at 75; 6 x 26 ft. at $1.20.
1½-inch No. 18, 3 x 64 ft. at $1.75.
1½ inch No. 16 3 x 11 ft. at .55
4 x 24 ft. at $1.65; 1¼-in. No. 20. 1 x 88 ft., at $1.00.
1¼-in. No. 19, 2½ x 19 ft. at .50; 2½ x 36 ft. at $1.00.
6 x 102 ft. at $6.75.

In lots of 5 pieces, any one or assorted kinds, d duct 5%; 10 pieces, 10%; 25 pieces or more, 15%. Be ter name a second or third choice, in case your fir be gone.

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Special Offer. *100* 2-frame nuclei, with warranted queen, at $1 50 each. Queens, untested, 75 cts.; ½ dozen, $4.00; tested, $1.50; breeding-queens, $3.00. We guarantee satisfaction. **LEININGER BROS., Fort Jennings, O.**

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116,000	1⅞	" "	20,000	1⅞	" "
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Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

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Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. Green, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
Anthony Opp, Helena, Ark.

WANTED.—To exchange Root's goods, at his prices, to be shipped from here or factory, for white comb honey (crop of '94 preferred) in quantity lots. See ad. in another column of June 1 issue.
B. Walker, Evart, Mich.

WANTED.—To exchange a good 6-inch Vandervort foundation-mill or 1000 and less of empty L. brood combs, A No. 1, for offers.
Jno. Nebel & Son, High Hill, Mo.

WANTED.—To exchange 20 second-hand chaff hives, for a good second-hand Safety bicycle.
J. G. Townsend, 31 Linden Ave., Jamestown, N. Y.

WANTED.—To exchange full colonies and 4 and 5 frame nuclei, for hammer and hammerless guns and gold watches. All Italians on L. frames.
Address L. Werner, Edwardsville, Ill.

WANTED.—To exchange alfalfa honey (comb or strained) for one pneumatic safety bicyle, clincher tire preferred. Must be as good as new; '93 or '94 model. Give full description in first letter.
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Tin Buckets, Bee-hives,
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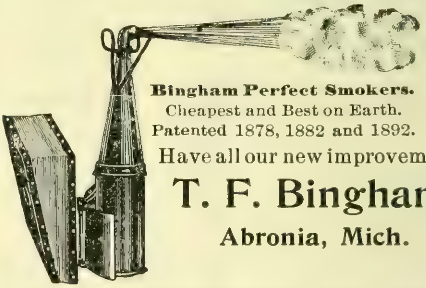

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Abronia, Mich.

☞In responding to this advertisement mention Gleanings.

5-Banded Golden Italian Queens.

Untested, each, 75c; 6 for $4.25. Best only. Try them and be pleased.

CHAS. H. THIES, Steeleville, Illinois.

Read what J. I. Parent, of Charlton, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. Root.

eoitf Please mention this paper

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge. After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have 30 hybrid queens for sale at 30 cts. each, or 4 for $1.00. They are last year's queens. Address
Albert Hines, Box 532, Independence, Ia.

About 12 nice young prolific mismated Italian queens for sale at 30 cts. each, or 4 for $1.00. A good share of their bees are yellow. W. F. Stuart,
Box 439 Ottawa, Kan.

HONEY COLUMN.

CITY MARKETS.

MILWAUKEE.—*Honey.*—The trade in honey is not very large these days, yet the old crop stock is getting out of sight, and by the time new is ready for market we shall be ready for shipments. Can now quote for best white 1-lb. sections 13@15; second best, 12½@13; common stock slow at any price. Extracted, in kegs or barrels, 7½@8½; white beeswax, 23@25.
A. V. BISHOP & Co.,
June 5. Milwaukee, Wis.

CHICAGO.—*Honey.*—There are very few consignments of comb honey arriving. The best grades bring 14@15. The market is also well cleaned up on dark lots, some of which have gone out at low prices. No change in extracted, price ranging from 4@6. Beeswax, 25.
R. A. BURNETT & Co.,
June 8. 163 So. Water St., Chicago, Ill.

BUFFALO.—*Honey.*—Honey has been moving off very slowly, still there remains a liberal amount on hand, which is moving off at sales ranging from 8@12, according to quality. Indications are that all will be cleaned up, and we look for a healthier trade as soon as new commences to come in.
BATTERSON & Co.,
June 7. Buffalo, N. Y.

DETROIT.—*Honey.*—Very little good honey offered, and but little call for it. Buyers awaiting new crop. Prices remain about the same; viz., best white, 14@15; other grades, 11@13; extracted, 7@7½. Beeswax, 25@26.
M. H. HUNT,
June 7. Bell Branch, Mich.

CLEVELAND.—*Honey.*—Honey market little duller than last week. No. 1 white selling slowly at 13; No. 2, 10@11. Beeswax, 25.
at 25.
WILLIAMS BROS.,
June 7. 80 & 82 Broadway, Cleveland, O.

KANSAS CITY.—*Honey.*—The stock of old comb honey is about all cleaned up; no new received yet. The supply of extracted is good. We quote No. 1 white 1-lb. comb at 14@15; No. 2, 12@13; No. 1 amber, 12@13; No. 2, 8@10; extracted, 4@6. Beeswax, 20@22.
CLEMONS, MASON & Co.,
June 8. Kansas City, Mo.

ST. LOUIS.—*Honey.*—No material change. New crop arriving slowly. Prime beeswax, 26.
D. G. TUTT GROCER Co.,
May 8. St. Louis, Mo.

BOSTON.—*Honey.*—Our market on extracted, 6@7c, with fair demand and light supply. Comb, 12@15c, light demand and fair supply. Beeswax, scarce, and wanted at 27c.
E. E. BLAKE & Co.,
June 11. Boston, Mass.

TO BEE-KEEPERS:

Send us your P. O. address and we will send you (free) a sample of a new wrapper that takes the place of glass on honey-sections.

Is attractive, light-looking, and consumers do not think about paying for the weight as they do with glass.

Costs about 5c a pound, and pays you double and triple cost in weight, when you sell your honey. The greatest protection in shipping honey, as it is so constructed that it keeps the sections from sticking fast to the bottom of the case, and from honey leaking as it commonly does.

H. R. WRIGHT, Albany, N. Y.

TESTED Italian queens, $1.00; untested, 65 cts.; select tested, $1.50. C. H. STEWART, Sparta, Tenn.

NOW IS YOUR CHANCE

To buy **cheap.** Bee-keepers' Supplies, hives, sections, fdn., etc. Write for price list. ROOT'S GOODS.
JOHN NEBEL & SON, High Hill, Mo.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

EDWIN ROBINSON. W. M. GRAY.
ESTABLISHED 1866.
Robinson & Gray,
SUCCESSORS TO
B. F. Southwick & Co.,
Foreign and Domestic Fruits, Canned Goods.
47 & 43 South Market and 5 & 6 Chatham Streets.
Headquarters for Vermont Shipments
of White-Clover Honey.

It will be the endeavor of the new firm to meet the wishes of their patrons in the future as the late firm has in the past.

Thanking you for the many past favors received by the late firm, we hope to be favored with a liberal share of your patronage in the future.

All orders and inquiries by mail or otherwise will receive prompt attention. Very respectfully,
Boston, April 2, 1894. ROBINSON & GRAY.

☞In responding to this advertisement mention GLEANINGS.

Bees and Supplies

Always on hand. Send for circular.
I. J. Stringham, 105 Park Place, N. Y.

HARDY
BUSINESS ✳ QUEENS.

Bee-keepers of the North, we can furnish you *now* with hardy bred queens of either the 5 banded Golden Italians, or Gray Carniolans. Our prices are very reasonable. Send for them before placing your orders. *Satisfaction guaranteed.* A complete description and price list free.

F. A. LOCKHART & CO., Lake George, N. Y.

5-Banded Bees in Iowa.

All my bees are bred with care by the most approved methods, and from the best 5-banded breeders that can be obtained, and positively can not be excelled for beauty, gentleness, and working qualities. Fifteen years' experience. Untested, 80 cts.; 6 for $4.25; 4 and 5 banded, $2.00; straight 5-banded on application. Satisfaction guaranteed.
J. E. HAND, Eldora, Ia.

Mother Bees.

If you wish the best of queens, or mother bees, send me your orders. Untested queens, 3 or 5 band, 75c each; $4.25 for 6, or $8.00 per dozen. Tested 3-band queens, $1.50 each; fine 3-band breeders, thoroughly tested, the **best**, $5.00 each; straight 5-band breeders, faultless queens, $10.00 each. Root's goods, Dadant's foundation, and Bingham smokers.

Jennie Atchley, Beeville, Bee Co., Tex.

ITALIAN QUEENS.

Untested queens, either 3 or 5 banded stock, at 65 cents each; per half doz., $3.50; per doz., $6.50. Virgin queens at 25 cts. each.

W. A. COMPTON, LYNNVILLE, TENN.

FOR SALE CHEAP,

Or exchange for queens, foundation, sections, books, bicycle, firearms, spy-glass, or offers, new two-story 8 frame tin-top hives, fitted complete for comb honey, or with full set of combs and zinc queen-excluder, for extracted honey.
M. FRANK TABER, Salem, Ohio.

☞In responding to this advertisement mention GLEANINGS.

My

Apiary is now stocked entirely with young laying queens of this year's rearing. Some of them have been laying long enough so that they are tested. I will sell the tested ones at $1.00 each, or with REVIEW one year for $1.75. For $2 00 the

Queen,

the REVIEW, and the book "Advanced Bee Culture," will be sent. I am yet receiving weekly shipments of young laying queens from the best breeders in the south. These untested queens I will sell at

75 cts.

each, or with the REVIEW one year for $1 50. For $1.75 I will send the REVIEW a year, one untested queen, and the book "Advanced Bee Culture." For

10 cts.

three late but different issues of the REVIEW will be sent. The May REVIEW contains an article from M. M. Baldridge in which he tells how to get rid of foul brood with the least possible labor—no shaking the bees off the combs, they transfer *themselves* to a new hive at a time when their bodies are free from the spores of the disease. He also tells how to disinfect hives with one-fourth the labor of boiling. B. Taylor tells how to secure as much white *comb* honey as extracted.

W. Z. HUTCHINSON, Flint, Mich.

HUSTLERS!

Read what one of the largest bee-keepers of this country says: "The queens (two dozen) came promptly. They are an extra fine lot. The bees are finely marked, gentle, and ***hustlers*** when it comes to ***honey.*** I have no trouble in picking them out now from over 600 colonies."—W. L. COGGSHALL, West Groton, N. Y., Oct. 17, 1893.

Prices for queens ***bred*** for business from above strain, ***5-band,*** are, May, $1.00; later, 75c; ½ doz., May and June, $4.00; doz., $7.50. July and later, six for $3.50; doz., $6.50. Single queens ***warranted*** purely mated. I ***guarantee*** all queens to arrive safely and to be ***good serviceable*** queens. Send for free circular. Draw money order on, and address, **J. B. CASE, Port Orange, Fla.**

Sections, Bee-Hives, and other Bee-Keepers' Appliances at Bed-rock Prices.

Best of Goods at Lowest Prices.

Write for free, illustrated catalogue and Price List.

G. B. Lewis Co., Watertown, Wis.

LAWS' Italians surely take the ***lead.*** They are now in every State in the ***Union*** and several ***foreign countries.*** Fine breeders always on hand; $2 to $5 each; untested, each, 75c; 6 for $4.

Also Apples, Ben Davis. Ark. Black, Mam. Black Twig, leading varieties, whole root only; trees, 10c each; on orders of 100 I pay the freight.

W. H. LAWS, Lavaca, Seb. Co., Ark.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's strain of Italians,** the result of 15 years' careful breeding.

Mr. Sam. King, Raleigh, N. C., referring to a queen purchased of me last season, says:

I received queen June 1; introduced her on four frames in the Simplicity hive; filled out with frames of foundation. Honey taken by July 8, 155 lbs ; honey taken in September, 197 lbs., and had plenty to winter on. I never saw such workers; have bees from twenty breeders.

Warranted queens, $1.00 each; 3 for $2.50. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 666 queens. Circular free. eitf

J. P. MOORE, Morgan, Pendleton Co., Ky.

Italian Queens Cheap.

My queens are as good as the best. Untested, 65c each; 3 for $1.75; 6 for $3.25. Tested, $1.25. Select tested, yellow to the tips, breeders, $1.50. Safe arrival guaranteed. G. E. DAWSON, CARLISLE, ARK.

FREE—To New Subscribers, a Choice of these BEE-BOOKS

Newman's "Bees and Honey."

This book treats of the management of an apiary for pleasure and profit. Over 200 pages, and over 200 illustrations. The book for beginners or the more advanced. Send $1.00 for the **American Bee Journal 1 year** (weekly) and get the book Free. The "Bee Journal" has 32 pages—established in 1861. Sample FREE.

"Scientific Queen-Rearing."

By G. M. Doolittle (portrait shown herewith). Tells how the very best Queen-Bees are reared in accord with Nature's way. 176 pages. $1 00 for this book and "Bee Journal" one year. Address,

GEORGE W. YORK & CO.
56 Fifth Avenue, - CHICAGO, ILL.

MONEY RETURNED to all buying **PORTER BEE ESCAPES** not satisfied after testing them. Prominent bee-keepers everywhere use and highly recommend them as **the best.** No others received a World's Fair award. Testimonials, etc., free. Prices: Each, postpaid with directions, 20 cts.; per doz., $2 25 Order from your dealer, or the mnfrs., **R. & E. C. PORTER, LEWISTOWN, ILL.**

13 Carloads of Supplies.

This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially

FOR THE WEST.

Joseph Nysewander, Des Moines. Ia.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

Published by A. I. Root.

$1.00 per year Medina Ohio

Vol. XXII. JUNE 15, 1894. No. 12.

STRAY STRAWS

FROM DR. C. C. MILLER.

FOREIGN BEE-JOURNALS are gaining appreciation. *Review* is to have them culled by R. L. Taylor, assisted by his niece.

DR. TINKER says queenless black bees will eat eggs given them. Won't Italians, Dr. T.? But sometimes they don't.

IS ANY VENTILATION of hives better than the old-fashioned way of raising the hive by a block under each corner in summer?

I'M GLAD to have Doolittle confirm my opinion that a laying queen can get through as small a perforation as when a virgin.

"OLIVER FOSTER dropped the supply business because he could make more money raising honey. That is encouraging."—*B. K. Review.*

WEATHER here would rejoice first page of *B. B. J.* May 17, A. M., 92° in shade; P. M., big hailstorm; next morning, snowstorm and down to 36°.

MENTAL OVERWORK and worry seems to have shortened Mr. Corneil's days. Many of us may take warning. Mr. Corneil's loss is felt outside of Canada.

A SPLENDID PLACE to keep combs is *under* a hive containing a colony of bees. They'll take care of them, even if not obliged to go down through the combs.

THAT LATEST CRANE smoker, with its accurately fitting, lightning-shutting nozzle, solid bolts, and corrugated outside—what other improvement is left to dream over?

EXPERIMENTER TAYLOR (*Review*) thinks moisture in cellar does no great harm to strong colonies; also that sealed covers do no great harm with big ventilation below.

THE BEST FOUNDATION, according to Gravenhorst, should not have the thin and exactly six-sided edges of walls we are accustomed to see, but thickened and round, as the bees make them.

THAT TROUBLE about mistaken identity of queens that Mrs. Atchley tells about on p. 452 would not occur if queens were clipped. [That's so; but beginners seldom clip, because they are too awkward.—ED.]

TOOK OUT my bees from cellar April 18; all but 10 taken out March 17, and 20 April 25. As nearly as I can make out by the last of May, it would have been some loss if I had taken all out in March.

THE CANADIAN government is to establish a department of apiculture at the experiment farm at Ottawa, and the publication of a French bee-journal for Canadians is in contemplation, says M. Benoit, in *Bulletin du Tarn.*

IN ENGLAND small hives are in favor. The standard frame is 14½x8, 72 per cent as large as Simplicity; 10 or 11 frames are used, 11 being hardly as much as 8 Simplicities. [Yes, yes; here is a pointer in favor of the smaller hives. —ED.]

M. M. BALDRIDGE gives in *Review* a management of foul brood worth considering. This and some other things, to change Hutchinson's words, makes it seem "to be one of those cases in which you ought to be a subscriber to" *Review.*

WHEN EMMA saw the new Crane smoker she said, "Now you'll not be always losing your nozzle." To which unkind insinuation I made no reply. [The nozzle was not hinged to prevent losing it, but to facilitate filling and to obviate burning fingers in handling a loose top. —ED.]

MR. L. O. HOWARD succeeds Prof. Riley as chief of entomology at Washington. The Chicago *Record* says Howard "has been the mainstay of that branch of the service for several years, and is the author of a large portion of the publications which bear Prof. Riley's name."

PREVENTION of after-swarming. Here's a good plan from Frank Coverdale, in *A. B. J.* Put the newly hived swarm side by side with old hive; close entrance of old hive, and put in its side next to new hive a cone escape, and in two weeks put the old hive on new stand, giving it a queen or cell. Too long a wait, though.

M. M. Baldridge says in a very positive manner, in *A. B. J.*, that Mahan was not the first to import Italian bees, and quotes Langstroth to prove that bees belonging to Wagner, Colvin, and Langstroth, preceded those of Mahan. Baldridge seems to know what he is talking about.

Gravenhorst says that, although so many foundation-presses are in use in Germany, they are used only by those who make for themselves. Hot wax poured into the presses makes the foundation brittle, and unfit for shipping, so the foundation of commerce is made on mills. [We infer that the hot-wax home-made foundation is not as good because of its brittleness. —Ed.]

B. Taylor (*Review*) thinks my plan of having sections cleaned by allowing entrance to them for one bee at a time makes them sting every thing in sight. (Taylor, you're a—a—well, just wait till I see you.) His plan is just the opposite. Give full access to top and bottom, and have sections enough for all. The philosophy is the same. I have few bees in proportion to the honey; he has much honey for the bees. With enough sections I believe his plan's best.

I'll cripple that printer that put "not" in 11th line, p. 454. The comparative merits of T supers and wide frames is one of the few things I *do* know about, and then to have him put in a fiendish "not"! Or, say, did *I* put it in? [Our mistake, Doctor. By the way, what a pity it is that we can not take that word which we did *not* want, and give it to Bro. York to put in the first line on page 648 of his issue for May 24! Bro. Y. never meant to say that "the bee-keeping world *can* spare Dr. Miller just yet." It's a naughty *not.*—Ed.]

A writer in *Success*, also one in *American B. K.*, credits me with being "Somnambulist" of *Progressive.* Quite a compliment, but you must guess again, friends. My trouble's the other way. I've too hard work getting asleep to fool away my time tramping around after I get to sleep. [If you can't sleep, no wonder. You have been threatened with brain trouble. Make the brain work less during the day and it will work less at night, is the advice of the editor, who speaks for his readers, we are sure. Get on to that bicycle and you will sleep. Try it and see.—Ed.]

I don't paint hive-bodies, because paint won't let moisture out through the walls. Painted covers won't let moisture in. Without paint, the cover warps; the body doesn't. [How do you *know* moisture will go through unpainted hive-sides? We haven't any positive knowledge on this point, but strongly *suspect* that there would be no practical difference regarding this moisture passing between the painted and unpainted sides. On the other hand, we do know that the unpainted hive-bodies won't last nearly as long; and, besides, will fail to be bee-tight sooner or later.—Ed.]

[The following were received shortly after the foregoing came to had. We suppose the doctor thought they were too long to be called "Straws," hence he calls them "Overgrown Straws."—Ed.]

Try this. Beat up an egg in a tea-cup, yolk and white; put in sugar and cream proper for a cup of coffee, then fill up with boiling coffee. Some don't like it, and some are very fond it. It's nourishing, and easy of digestion.

Try buttermilk, friend Root, in your "rotation" of diet. There are cases in which buttermilk does a good deal better than sweet milk. I've been using it a good deal lately, and, although I'm inclined to "sour stomach," it seems to agree better than sweet milk. A glass of cold sour butermilk sweetened, with a very little dissolved saleratus rapidly stirred in, makes an effervescing drink that is very refreshing. It's food, and should be taken about meal time.

The women-folks, and sometimes the men-folks, make an awkward job of planting in the ground plants in pots. Here's a good way: Dig a hole deep enough, and plant pot and all. Pack the earth firmly and closely about the pot, having the surface of the earth in the pot on a level with the surface outside. Now lift out the pot carefully, turn it upside down, knock the now under rim of the pot upon the top of a box or something solid, when, if the ground is not too wet, it will fall out in a compact ball. Set this in the hole, jab your trowel all around it, pack the ground, water it, and sprinkle dry earth on top.

Bits of comb attached to separators, as mentioned in sixth item on p. 470, I suspect, is a different thing from the trouble mentioned by P. W., p. 469. Your answer to P. W. is all right, and I may add that I have *no* trouble of that kind since using bottom starters. He'll find the trouble worse when storing is slow. But I've sometimes had trouble with "bits of comb" built on the separator, entirely separate from the sections, the bees seeming to have a surplus of wax they didn't know what else to do with—sometimes honey in the little combs, oftener not. I don't know that the kind of separator has any thing to do with it.

A pound of wax takes 20 pounds of honey, or 7, or 3, or something else, and some have said you can't have wax from honey without pollen. These varying opinions may be understood if we accept as true what Julius Steigel says in a German bee-journal. He says that grains of pollen are protected by an envelop of wax. In consuming pollen, bees get also the wax, which is then reproduced in scales if needed; and if not needed, it is thrown out as excrement. Pollen not being the food of old bees, they are not in the wax business. [The highest and lowest figures are probably extremes. More experimenters have agreed on about 7 lbs.—Ed.]

Ernest, that third paragraph on p. 469 shows that you entirely misunderstood the third paragraph on p. 468. Please look again. I've no objection to "that ⅛-inch end play of the top-bars." What I want is ⅛-inch blocks, not on the end, but on the *side* of the hive, so that the frames can be shoved tight against them instead of being shoved against an eighth space of air. [You are correct; we did not read you rightly; but, take you as you mean, we have to say that we tried little cleats on the side of the hive, but finally tore 'em all off. Try and see for yourself.—Ed.]

Who of us hasn't wondered what it is that gives the bright-yellow color to beeswax? Wax is generally considered white when first produced in little scales. Cowan says it is always tinted, the color coming from the pollen consumed. But what makes it get yellower in the hive? A German writer says that, like the young of nearly all animals, the young bee, on first emptying its bowels, discharges fæces of intense yellow, and this colors the comb. White comb confined in the center of a colony, but inclosed in wire cloth, remains white. Here's something for experimenter Taylor.

Uniting. For years I have had colonies unite, generally when I didn't want them to, by being in the same hive with a hole or crack under the division-board. Working on the same principle, here's the way I have united lately: Having the colonies to be united in two separate hives, I set one hive on top of the other, with a piece of heavy wrapping-paper between, the paper having about its center a hole large enough for a bee to go through. That's all. Just put one hive on the other, paper between. In a few days the paper is gnawed away, and the bees all one family. It may fail sometimes, but not thus far with me.

Those spacings, 1¼, 1⅜, 1½ (page 469), are just exactly what were before me by actual measurement as you had fastened in the foundation. It may be that you get them nearer the center generally, and, of course, I measured up at the top-bar. But is there any use for that extra ditch? Wouldn't one be as well? [Say, Doctor, didn't you pick out the extremes? If you measure all the frames again, we think you'd find the foundation to *average* in the center. The one trough would be all right providing everybody used foundation; but our orders show that not half do so far—they depend upon the comb-guide, as fathers Langstroth and Quinby did in the days before foundation was known. We endeavored to make a top-bar that would hit both users and non-users of foundation. See?—Ed.]

HONEY-DEW HONEY.

By Prof. A. J. Cook.

Mr. R. Powell, of Redlands, Cal., sends me a sample of honey which he says is the same as was sent east last season by Mr. Brooks, of Riverside. Several cans were sent in a carload of other honey, and Mr. Brooks is having trouble, as the buyer east is complaining that it is not pure. Mr. Powell wishes me to write an article on this honey, for Gleanings. The honey is quite dark, but very thick and quite pleasant to the taste. I have very little doubt that it is from honey-dew. I have already taken steps to have it analyzed, so I think I can pronounce with certainty regarding it in a few days. I should feel very safe to buy and use the honey. I would hardly pronounce it first-class, but should call it good. The color and flavor are both below that of the highest grade.

A few days since, in company with our good friend Wilder I visited our brother Brodbeck at his wondrously beautiful and romantic site in Arrowhead Canyon. I think he has the most beautiful place for an apiary that I ever saw. We looked through his hives, and found that his bees were storing quite rapidly. He is so far up in the mountains that the drouth may not seriously affect his crop. Mr. B. told me that he secured much honey last year from the dodder, *Cuscuta subinclusa*. I expressed surprise, as I had never before heard of this curious plant as a honey-plant. Moreover, I said I thought the dodder east bloomed early, while his crop came in the fall. I find I was right. The dodder blooms early, and so I am now wondering if friend B.'s honey was not also this honey-dew honey. I have sent to him for a sample, and when it comes I shall be able to state quite positively. Later, when I have a careful analysis made, my opinion may be confirmed. It is a matter of no little interest, and I shall probe the matter to the bottom.

ANOTHER BEE-ENEMY.

I have now received samples of comb with dead brood, from three different sections of Southern California—one from near Santa Paula, Ventura Co., and one each from Fernando and Pomona, in Los Angeles Co. It is not like foul brood, as the decaying brood is darker, and the viscid, elastic, stringy mass is never seen. On the other hand, the decaying brood is quite dark, and the form of the larva or pupa is always preserved. In every case the cells are scattering, and mixed in with much apparently healthy brood. It is not very serious, as it is, so far as noticed, rarely very abundant, and colonies often recover. It can not be chilled brood, as such could hardly be in this region, and would not be found in scattering cells, as this is found. I have wondered if it could be a case of poisoning. I should suppose the scattering cells would argue against this;

and the fact of the widely scattered regions of its appearance would seem to refute the poison theory. Yet I would suggest that all who suffer from this malady inquire and see if spraying with poisons has been practiced in their localities. One gentleman writes me that he saw it ten years ago, and changed the queen, and health was restored. He found it again last year, and now it appears again, worse than last season. This experience would seem hardly in accord with the poisoning hypothesis. I should like to hear from all who have noticed this disease. I think it is a fungoid malady. I shall try to get time to investigate it. If it is a case of poisoning, then the microbe which is causing the decay will be the common one of putrefaction—*Bacterium termo*, and can easily be identified.

Claremont, Cal.

MIGRATORY BEE-KEEPING IN GERMANY.

CONCLUDED FROM APRIL 15TH ISSUE.

By C. J. H. Gravenhorst.

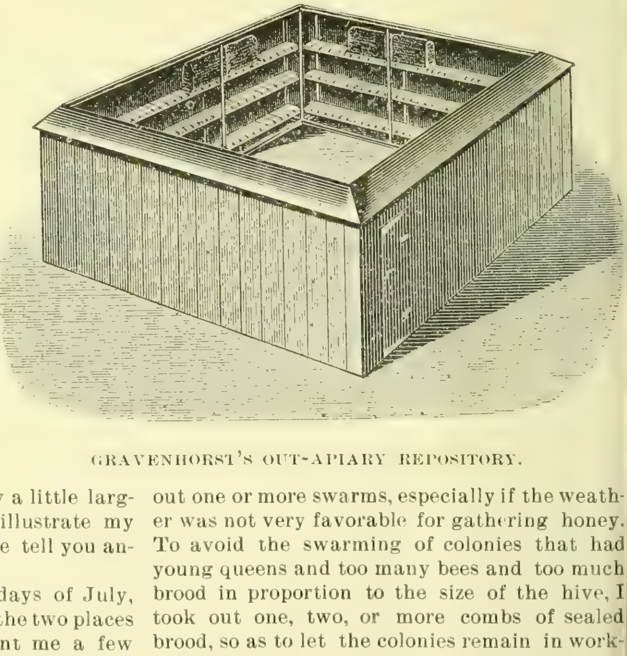
In my previous article I told you, Mr. Root, how I move around with my colonies in the *spring*. However, a migration at this time will be nothing to one in the month of July and August, especially if the combs in the hives are new ones or do not fill up the frames. The weather in the spring is cool; the combs are a year old or more, and the colonies are not so populous as in mid-summer.

Living in a part of Germany where, in most years, the honey-flow is over by the first week of July, or, at least, it is then not half so good as in the buckwheat-fields and the heath of the province of Hannover, I soon found out that it would pay to go thither with the bees every year in the beginning of July and August. Thirty miles from my home, in the neighborhood of the city of Celle, near the village of Ummern, I rented two places, and there built two bee-houses, one in the midst of the buckwheat-fields, and one on the border of the large heath-plains, where the *Erica vulgaris* abounds. These houses were built as the engraving shows, only a little larger, each for 70 to 80 hives. To illustrate my migration in mid-summer, let me tell you another episode.

One summer during the first days of July, the farmer of whom I had rented the two places for my bee-houses in Ummern, sent me a few lines. He said to me, "On the 9th or 10th of July the first blossoms of buckwheat will be open."

I know by experience that it is always better to be in season with the bees before or just after the blossoms of buckwheat begin to open; for otherwise, if in full bloom, the bees get drunk from the fresh honey of the buckwheat, and perish then, in consequence of which the hives become depopulated. All this is avoided if the bee gets accustomed to the honey by little and little. I therefore immediately commenced with the preparations for the migration. The lindens (basswood) and other plants had yielded a very good crop. I had already extracted several thousand pounds of the nicest honey, and my colonies had only enough honey left to prevent starvation in the buckwheat-fields, if bad weather should set in. Most of the hives were brimful of bees, and had also much brood.

The principal work I had to do was to prepare my colonies in such a way that they would not swarm in the buckwheat; otherwise I should be obliged to watch them day by day, as those bee-keepers must do who do not have movable-comb hives. This I could and would not do. In the first years of my migrations to the buckwheat I had no other chance to be present to catch and hive the swarms. That was very expensive. Later I found a way to prevent swarming at this time. Those colonies having a young queen, and not too many bees and brood for the size of my hives, I was sure would not swarm; but most of those colonies with queens one or more years old would send out one or more swarms, especially if the weather was not very favorable for gathering honey. To avoid the swarming of colonies that had young queens and too many bees and too much brood in proportion to the size of the hive, I took out one, two, or more combs of sealed brood, so as to let the colonies remain in working order. The brood-combs, I put into those hives that would be built up more therewith. To fill the places of the brood-combs, I inserted



GRAVENHORST'S OUT-APIARY REPOSITORY.

full combs of foundation. In those colonies having old queens I spread the brood and gave also full combs of foundation, but only one frame between two brood-combs. By doing this the bees were obliged to cover all the combs in that way, as they do if one or two swarms have issued from a good colony. Here, I must say, all my colonies with old queens were natural or artificial swarms, hived at first only on 5 or 6 frames, with starters, according to their strength. If the bees had built out 5 or 6 frames, then I spread the brood also, and inserted foundation. All the brood-combs and foundation were full of brood and honey at the beginning of July. There would be at this time 9 or 10 such combs in those hives. By the preparation of these colonies I took out alternately four of the brood-combs with hatching brood, and inserted them in the honey-room. Also I put at the end, 3 or 4 frames full of old combs, filling the empty places with foundation, leaving all combs, with unsealed brood, in the brood-nest before and near the entrance. Right here I will say, I do not work for comb honey, as we do not have in Germany so good a market for comb honey as for extracted. As I can lift out every frame of my hives single, without injuring combs or brood and bees by pushing aside the two frames near the desired one, enlarging the spaces, I can do all the work very rapidly. Furthermore, the hives were prepared for the migration, as I told you in my other article. Where it was necessary, a wooden stick was put between the combs, to give a few shaking combs more support, and then the hives were closed with a loosely woven cloth, by nails or cords.

On the 6th of July, 70 to 80 hives were ready for migration, and on the evening of that day loaded on a wagon, like the engraving showed you in my previous article. The hives were set on the wagon so that the combs ran at right angles to the wheels; otherwise, if their sides were turned to the wheels the combs would easily break down by the jolting of the wagon from one side to the other.

At 9 o'clock I started. As all the hives were covered, and closed with a loose cloth, and loaded top down, in such a way that the fresh air came in contact with the cloth, I was able to feel, by putting my hand over them, as I did now and then, whether the bees were too warm or not. The night was a wonderful one, and the stars shone very brightly. I had traveled only a mile from home when I was aware, by touching the cloths on the hives with my hand, that some of them were becoming hot and damp. In such a case I knew that the bees would be smothered if I did not interfere. There were two of the most populous hives that had become hot. These were loaded on top of the wagon. This showed me what was necessary to do. I uncovered at one end the hives by removing the cloths a little. Of course, the bees rushed out of the hive and covered the cloths, but none of them flew off or molested me or the cartman or the horses.

So we traveled on, and came, at two o'clock in the morning, to an inn, called "Imkers Heimat" (Bee-keepers' Home). Here we rested for an hour, feeding the horses and refreshing ourselves. After doing this we went on at three o'clock. On account of the coolness of the night most of the bees of the two hives went inside, and those which hovered on the cloths did not move any way, though the sun soon rose. Now and then, as the sun got higher up the firmament, one or two bees would fly off. Of course, they were lost. But that did not matter.

At 8 o'clock in the morning we were at the place of destination, and not a bee did any harm to us or the horses. These my cartman brought to the inn of the village Ummern, and I and another bee-keeper, who had his apiary one mile away, unloaded the bees. Setting the hives on a wheelbarrow we wheeled them into the bee-yard and to their stands—at first those two with the bees on the cloths. With a little smoke and gentle handling, all went well. Every hive was laid on its stand, entrance above, but so that the cloths faced toward the bee-yard. After all the hives were in their places we covered our heads with a veil and placed every hive on its stand, with the cloth underneath, and then opened the entrances. When this was done I went to the inn of the village, refreshing myself with a good dinner and taking a nap for some hours.

At four o'clock in the afternoon I found myself once more in my apiary. The bees, having had a good and long flight, were peaceful, and only a few flew, as the blossoms of the buckwheat had not opened, but would in the next few days. Then I placed one hive after another on my wheelbarrow and took off the cloths. A few whiffs with the smoker, and I got a peep into the hive, removed the wooden sticks, and placed the hive on its stand, when I saw all was right. In only one of those two hives, the cloths of which I had removed a little on the journey, were two broken combs full of brood and honey. I removed them, placed the hive for a while on its shelf, went aside, and tied with threads and sticks the combs into the frames. When this was done I turned that hive over, set it on the wheelbarrow, blew a few whiffs of smoke into the open places between the combs that the bees there made, and inserted again the repaired combs, supporting them by a few wooden sticks thrust into the walls of the hive.

After I had done this, and seeing all was right, I said to my bees, "Good-by." Let me say here, that I had insured house and bees against fire and mischief.

Four weeks later, as the *Erica vulgaris* began to bloom, on the 8th of August, I hauled another wagonload of bees to the heath, to my other bee-house in Ummern. Having learned from other bee-keepers that the bees had worked very fast on the buckwheat, I had brought with me seven of my hives full of frames, with combs, each hive containing 20. These combs, with the hives, I took along with me to my first apiary that I now visited. Here, by turning over the hives, I found that the most of them were full of honey; and, just as I had expected, I took out 140 frames of sealed honey, filled their places with the combs I had ready, and stored the honey-combs in the seven empty hives, in order to take them home.

Of course, I should have had more honey if I had extracted at the right time, but it was not possible to do that. I was content with the crop.

At the end of September I hauled my bees home. They had done very well, for the hives were full of honey. The only trouble was, I could not extract the honey gathered from the *Erica vulgaris*. But as this honey is very good for feeding bees, I reserved a great deal of the sealed comb for feeding, and the rest I sold for the same purpose to other bee-keepers.

I took that year 10,000 lbs. of extracted honey, and sold it at an average price of 25 cents.

You see, friend Root, that migratory bee-keeping pays very well in Germany if the bee-keeper is always on the lookout for better forage, has a good hive and bee-wagon for migrating, and understands how to move with his bees at the right time.

Finally, I am obliged to confess, right here, that not always does migration with bees here yield such a respectable profit; but one good year makes up for two bad ones. A great advantage in my wandering to the *Erica vulgaris*, for me, is, though the heather honey can not be extracted, it enables me to avoid feeding sugar in the fall. I can feed my colonies with the best food for bees—with sealed honey. To cut a long story short, migratory bee-keeping enabled me to get my livelihood from my bees, and therefore I have always thanked God.

Wilsnack, Germany.

MAKING SUGAR SYRUP FOR FEEDING.

A CHEAP AND HANDY PERCOLATOR OUT OF A REGULAR UNCAPPING-CAN.

By B. Taylor.

Editor Gleanings:—I read Dr. J. T. Beall's article, on page 226, of March GLEANINGS; also that of M. F. Tatman, page 332, April 15, with great interest. Feeding intelligently is, in my opinion, the key to certain success in honey production. It now appears certain to me that it is impossible to winter bees with certainty in our northern country, where they are confined five or six months, unless the hives are well filled with young bees when winter commences. Sometimes the usual fall flow of nectar from flowers fails; and the colonies, especially those that have made a large amount of surplus white honey, will cease to raise brood when their store of surplus is taken away, and I am now certain that such colonies can not be wintered by any perfection of quarters or preparation, so as to come out in the spring sufficiently strong in bees to breed up strong for the white honey-flow; and without this, profitable bee-keeping, as the conditions and demands of markets now are, is impossible. The remedy is, to feed the bees in the fall, when the flowers fail from any cause; and I know that, by expending 50 cents to $1.00 for sugar, and making it into suitable syrup, and feeding it intelligently, it will cause a colony to continue brood-rearing, and have the necessary force of young bees that can live until another season begins.

Granulated sugar is the cheapest material to make this syrup of, as a dollar will now buy 20 lbs. at retail, which will make 30 lbs. of syrup—enough to send any colony into the cellar in prime condition. This sugar syrup, however, unless skillfully made, is liable to two serious faults—fermenting and granulating, either of which is fatal to success. I had learned to avoid these difficulties, but at the cost of considerable trouble, and I hailed any simple and certain means of making the syrup as a great boon; and I know that thousands feel as I do; hence the question is one of great importance to bee-keepers in general.

When I read Mr. Tatman's article I decided to go to town at once and get the necessary material for a machine; but no team being immediately at command, I was compelled to delay. Alice Carey says, in one of her sweet poems,—

> We can not make bargains for blisses,
> Nor catch them like fishes in nets;
> And ofttimes the things life misses
> Help more than that which we get.

Being disappointed I lay down for a restful nap. Here is the time and place where I do my thinking and dreaming. A vision presented itself to my mind. I had one of Bro. Root's uncapping-cans. Why would not this make a capital leach for making syrup? Here is the 12-gallon can below, for holding the syrup when made, with molasses-gate all ready to draw it off. The top can will hold at least 150 lbs. of sugar, with room for water. But this great weight will be too much, for the wire-cloth bottom will sag and spoil it. I will go at once and plan to overcome this difficulty. Oh happy day! Brother Root has anticipated this very need. He has put this large tin cone in the lower can for this very purpose. I had forgotten it was there. I had often wondered why it was made, as the cappings from combs when extracting are very light, and do not need it. It is now plain why it is there. Brother Root truly sees things from afar off. Yes, the thing is all ready for a perfect syrup-factory, without a cent of expense or a moment's delay. The flannel filter is the only thing needed. The can is 20 inches in diameter, and a circle was struck on a piece of stiff paper 22 inches in diameter, 2 inches larger than the can. This is to turn up one inch all around against the edge of the can, so the sugar can be pressed tightly against it, and a leak be prevented, and the syrup be compelled to leach through the cloth, for in this lies the secret of perfect syrup.

The paper was laid upon a sound piece of clean old bed-blanket, and three pieces cut out; and as we were quite certain that we had found the "promised land," and that the thing was not an experiment, we located the can under the shop stairs, upon a neat platform high enough to set a suitable vessel under the honey-gate, to catch the syrup. The flannels were spread upon the wire bottom, and carefully adjusted around the edge. Then 70 lbs. of sugar was scooped from the barrel of granulated, setting alongside. Two pails of water was poured on, and I lay down for a night of happy dreams. Was I disappointed in the quality of the syrup? I should say not; and I am happy. Thousands have these uncapping-cans, or others similar, and I need not add another word to this rather long story.

Forestville, Minn., April 25.

[There is no doubt that the syrup from a percolator is of superior quality. Dr. Miller seems to think the process slow; but perhaps his machine was not large enough. We should like to know about how many gallons you could make with the uncapping-can as you have arranged it, per day of ten hours.—Ed.]

RAISING QUEENS FROM DRONE-CELL CUPS.

ROYAL JELLY NOT NECESSARY IN PROVISIONING CELLS.

By J. D. Fooshe.

Mr. Root:—I have been thinking for some days that I would write you a short article on queen-rearing by the method I have last adopted, which is the drone-comb plan which I gave you last fall, too late, perhaps, for most persons in the North to try it; but I will call attention to it again in connection with some other experiments and observations along that line. I notice a gentleman from Australia says he has raised several hundred queens by using drone comb for cups. I guess that bees are the same in habit all over the world, and my observation and experience are, that bees, when queenless and broodless (especially colonies or good strong nuclei contracted so as to be compact), will rear queens in any kind of wax receptacle that you will transfer young larvæ into. I have never known any thing but a queen to be made out of larvæ transferred to wax cups from drone comb, or worker comb, and for convenience it is best to place the cups or strips of comb on parallel bars. If we cut strips of comb containing young larvæ the right age for rearing queens, and place them upon parallel bars, as the Alley plan, the bees will select several and convert them into queen-cells, and the rest of the larvæ they will feed and cap, and this latter hatches out worker bees; but where we transfer a larva into a cell, I have never known any thing made out of it but a queen. If we transfer fifty or a hundred larvæ into that many cells, the bees will probably reject 50 per cent, but still all they do accept will be fed for queens. This being the case, it makes but little difference as to what the cups are made of, whether wax or comb. The drone comb has larger cells, and is better adapted to our purpose; but I think I am safe in saying that bees will use worker comb in the same way. It matters somewhat, and I think considerably, as to the quality of the comb used. Clean nice new drone comb, or comparatively new (not black tough comb), will be accepted by the bees as often for cells as any thing that I have ever tried. As for using royal jelly, that is a matter entirely as to taste with the breeder. You know that I have always contended it only facilitates the operation inasmuch as the larva would stick to the jelly, placed in the bottom of the cell. That being the case, it is always easy to clear the larva from the instrument used for transferring. I am satisfied that the bees take all out that is put in (that is, the jelly). As a rule, bees will accept a larva for a queen in two hours after giving it to them. If one will go to the trouble of watching this closely he will find, in the course of two hours, the small larvæ will have a milky fluid deposited near it, and is soon floating in royal jelly, whether any was used or not. All the royal jelly that we deposit in cups is only an inducement for the bees, or, rather, a suggestion to them, for it can't possibly be used to feed tiny larvæ, as it is too old, and not adapted to feed young larvæ for queens. I guess none of us secure jelly much under two days old, so I give it as my opinion that, if cups are not handy, there is nearly always drone comb convenient, if selected and placed away; and in the absence of royal jelly we can proceed, provided one has a steady hand, and can pick up the larva and transfer it into a drone-cell without punching a hole in the bottom of the drone-cell.

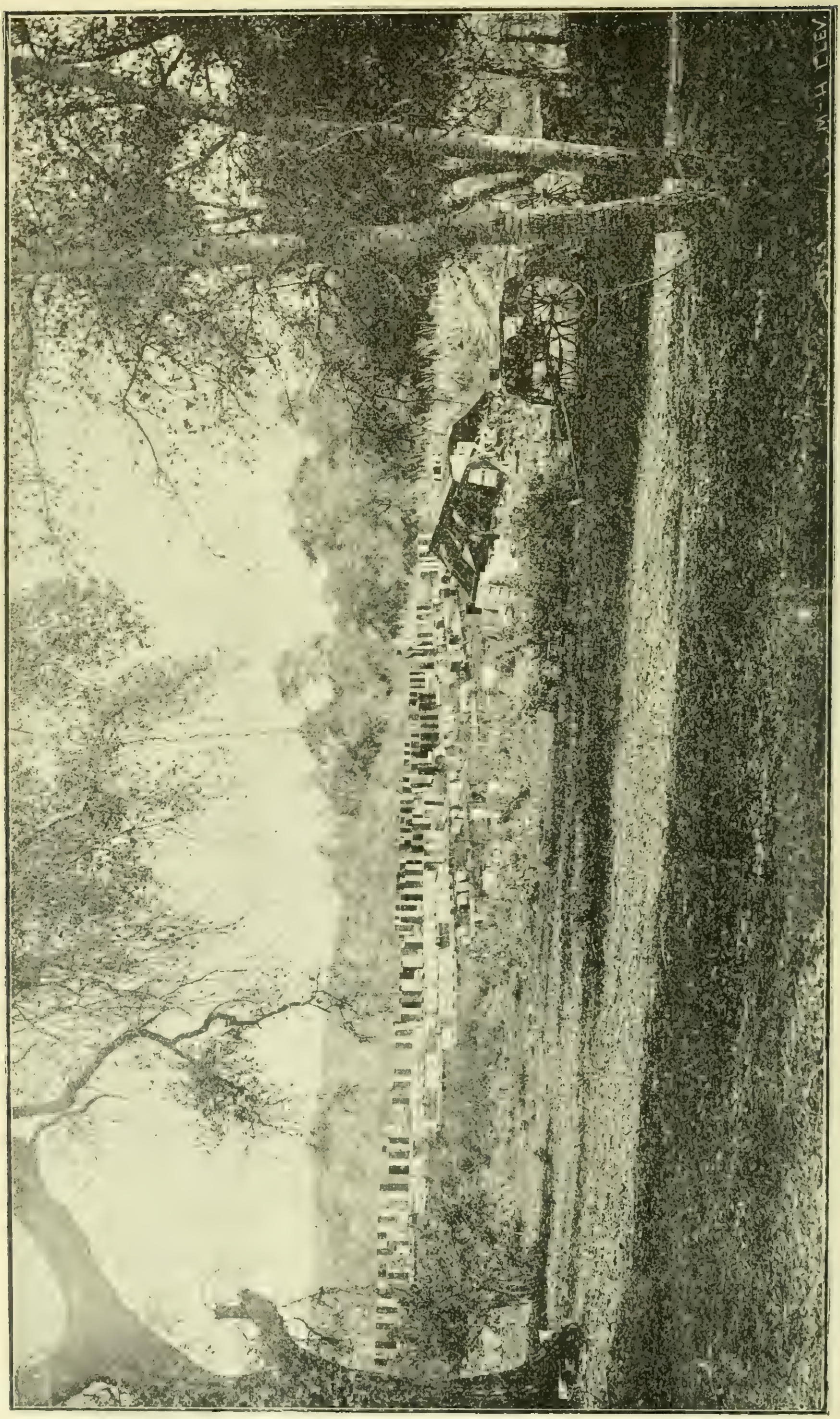
Coronaca, S. C. J. D. Fooshe.

RAMBLE 110.

PACKING AND MOVING HARBISON HIVES, ETC.

By Rambler.

The McCombes ranch is a tract of several thousand acres in a fertile valley on the headwaters of the San Luis Rey River. The region abounds in springs and magnificent oak groves.

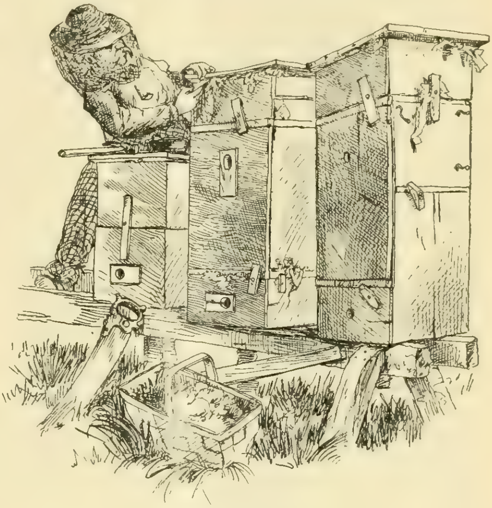


OAK GROVE APIARY.

It is about 20 miles from the ocean, and from some of the mountain-spurs above the apiary the sheen of the ocean can be seen. The live-oak grows here to perfection, making a delightful shade and the very ideal of camping-places. The ranch had over 2000 acres of grain sown, and supported large herds of cattle and horses. The band of cattle had a tenderfoot cowboy attached, mounted on a broncho, with a large revolver sticking conspicuously from his belt. The honey-pasturage was excellent—white sage from valley to hilltop; black sage more sparingly distributed, but much of it; wild buckwheat of rank growth; other plants too numerous to mention; fruits, none to speak of; fruit-men and their cranky notions, ditto. Having in mind what Mr. Muth-Rasmussen said recently in GLEANINGS about cross bees and lack of shade, I observed that the bees in this apiary, though not directly under the trees, were very mild-mannered beside others I have managed where there was no shade. Yes, Bro. Ras., if I ever settle down it will be in the delectable shade of an oak grove where there are babbling brooks and singing birds, where bees are kind, and where feminine persecutors are unknown. Where, oh where! can such a place be found? Echo answers, "Where?"

I present to the readers a beautiful and artistic photo of the apiary which was the seat of our operations for several days. It was our duty, as an advance force, to get the 200 colonies ready for moving. Upon arrival we found our honey-house, and what we expected to be our residence, blown over, and only one end supported by a pile of hives. We found room in here for our bed, and established our "kitchen" under the oaks, at the rear of our wagon. There were 50 colonies in new portico L. hives. These were easily prepared for moving; but the 150 old Harbison hives were a vexation of spirit, and extremely lacerating to all the members of our bodies, as you will hereafter see.

That the reader may understand the beauties of a Harbison hive I present a photo of two which are samples of all the rest. It will be observed that there is an attempt to stop the cracks with rags. A good share of the hives were well cracked in front, and all of the rear doors fitted as shown in the picture, or so that bees could crawl out all up and down the corner. Add to this open knot-holes, rotten places in the corners, etc., and it will be readily seen that we had quite a little recreation on our hands. The real work came in where we had to nail on those ill-fitting rear doors, and then saw the hives off at the center, or just above the interior immovable frames. These colonies were to be transferred to new hives when they reached their new location, and it did not make much difference how much we mutilated the hive if it would only hold the bees. Mr. Powell and I pitched into our work right and left. There was a large number of old combs in the upper part of the Harbison hives. We decided that these should be rendered into wax forthwith; and, finding a suitable boiler, we started a fire. As soon as the water boiled, in went the combs, frames and all. We fed our fire with old hives, and the waxed and propolized lumber made a brilliant flame. We kept this waxworks going until 11 o'clock, or until the job was finished, and secured a large lot of wax. We retired to our flat, and had our restful slumbers, and found our flat, surrounded by the silence of nature, much better adapted to sound sleep than was the granary of the previous night, with its various vocal and instrumental attachments.



HARBISON HIVES.

The next morning we commenced the nailing and sawing operations; and after sawing off the Harbison hive, and tumbling its old cracked head in the dust, a piece of burlap was nailed over the top, a liberal supply of cotton batting tucked in cracks and holes, and it was ready to move. This cotton-batting idea is a very good one, and it stops a hole much better than rags or paper.

We had thus prepared the two front rows when I brought the camera to bear upon the situation. Mr. Powell will be seen mounted on the top of a tall bee-hive. The noble oaks in the foreground; our stylish "flat" in the center, and the many Harbison hives, make a varied and interesting picture.

In the afternoon we were busy at our work when we heard the rattle of big wagons coming through the oaks, and Mr. Wheeler and George made their appearance upon the scene. We expected them about 24 hours later; but Mr. W. is a hustler, and believes that, when there is work to be done, it is best to do it. The two big wagons were drawn by teams of great strength and endurance, and it was the plan to load 50 colonies on a wagon, taking 100 at a trip, making two trips. Mr. Powell and I thought we couldn't get 100 colonies ready and loaded in time to start that night; but Mr. Wheeler said it must be done, so all three went to plugging up holes and nailing up entrances. George, the teamster, preferred to keep a good distance from the flying bees; but we knew he would come to a realizing sense of the setting-down qualities of a bee after taking a couple of two-day trips with them ; and so it did come to pass that George got stung several times, and he hurled several anathemas against our lively pets and the business generally, and the carting of them around the country in particular.

The shades of night were beginning to fall ere the wagons were loaded. Our pony wagon was also loaded with empty hives and odds and ends. I was sorry to see my partner of the day before leave with the rest. They hustled off in such a hurry that supper was forgotten or intentionally omitted. As I went ahead of the cavalcade of wagons, with the lantern, to guide them out of the grove, I could see Bro. Powell gnawing at a cracker. George had a supply of provisions under the seat. Mr. W. didn't eat any thing. Hustlers hardly ever do. I delivered the lantern to the head team when past the danger-spots, and groped my way back through half a mile of darkness to the camp, made up a rousing fire, got my supper in the loneliness and quietness of the forest, and finally retired to my flat, where tired nature's sweet restorer brooded over the scene. Wrapped in utter oblivion, all thoughts of lovely dells passed away, and in pleasant dreams of murmuring brooks, waving trees, and sun-kissed flowers, the tired frame put on new strength for the toil of the coming day.

A RACE OF LARGE BEES—HOW SECURED.

STRONGEST CHARACTERISTICS COMING FROM THE DRONE RATHER THAN FROM THE QUEEN.

By Dr. C. C. Miller.

Friend Root:—I send you by this mail samples of comb that I have received from Dr. J. P. Murdock. You will remember him as the Florida man who developed the strain of big bees. Two years ago he sent me a queen, but her workers that *I* raised were not extra large, and the comb they built was little larger than ordinary. Naturally it should be so, for her progeny were all raised in cells of ordinary size. There is no question, however, that the present samples of combs made by his bees are much out of the ordinary line. If I have made no mistake in measuring, the drone-cells are about 3½ to the inch. Most of the worker goes about 4½ to the inch, and the small piece with the queen-cell is not far from 4 to the inch.

I don't know that it necessarily follows that a larger bee is a better bee, but in one respect I can see wherein there may be a great advantage. If bees raised in cells 4½ to the inch are of proportionate size, then their tongues ought to be one-ninth longer than common. That extra length might be quite an item in a big range of red clover. My first thought was, that it would not be possible for any one to get a queen and raise full-sized bees with ordinary comb; but some of the comb comes so near the size of ordinary drone comb that I think a success might be made by furnishing the queen nothing but drone comb four cells to the inch. Indeed, I feel almost sure about it so far as the comb is concerned, the only question being as to the matter of heredity. If any thing is inherited from the nurse-bees, then there might not be so full success.

Not the least interesting feature of the case is the fact that it is possible to obtain such emphatic results by careful breeding; for if it be possible to make in a few years an increase of 11 per cent in the linear measure of worker-bees —taking it for granted that the size of the bee corresponds with the size of the comb it builds —and a consequent increase of 50 per cent in weight, it seems reasonable that the same amount of effort might produce considerable results in other directions. Breeding for color is another illustration; and although the color of the bee, in and of itself, has little value, yet I suspect there has been more effort in that direction than in any other. As a consequence we have bees of such golden color that they might almost be considered a separate race from the Italian. If size and color are so clearly under control, we may hope that in time we may have added other points. It would be a fine thing to have attention given to longevity, so as to have the working days of each worker increased 25 or 50 per cent, to secure such hardiness as to wintering that the north would be on a par with the south, to have the propensity to swarming entirely bred out, and perhaps many other things.

I have been greatly interested to learn something of the doctor's plan of procedure, and give here an extract from a letter which he has kindly written me. He says:

> My way of improvement has been with the drone rather than with the queen. Seeing the wonderful influence royal jelly has with the queen induced me to feed it to the drone larvæ. I killed almost all until I learned to feed it, then by careful selection of both drones and queens I have arrived at my present-sized workers. Drones are often weeded out until I have not more than a hundred all told.

Isn't there a strong hint in that paragraph worthy the attention of all breeders? With the possession of queen-excluders the man who is not too closely surrounded by other bees has half the matter in full control by careful weeding of drones. Heretofore I think the principal attention has been given to the queen In all other lines I think as much attention is given to the father as the mother; indeed, I think more. The poultryman gets a new cock rather than a new hen; the dairyman a new bull rather than a new cow; and it may be that, in the future, drones may become a matter of merchandise as well as queens. Then Dr. Murdock will get a set of drones from the man whose workers live eight instead of six weeks in the busy season; and when he has that trait well fixed he will get drones from the man whose bees never swarm, and so on. I have hopes that, by getting one of Dr. Murdock's queens, and giving her nothing but ordinary drone comb, I may raise as large workers as his and see them busily at work on red clover.

It may be that A. I. Root will have to brush up that foundation-mill that he threw aside years ago. He made foundation that was laughed at, because it ran 4½ cells to the inch, and the bees didn't know whether to use it for drone or worker comb. The trouble was, that A. I. Root was just that much ahead of the age. I don't think large bees will be secured by using large cells, but large cells will come from breeding large bees, and progress must not be hindered by cramping them in cells too small. I shall watch with interest to see if these bees do better than others on red clover; and if they do, brother Root, please get ready for me some proper foundation.

Marengo, Ill.

[We believe it is quite possible to breed an extra large race of bees—just as possible as it is to breed four and five banded Italians from the ordinary three-banded stock. The best evidence of this is seen in the samples of comb forwarded on to us by Dr. Miller. It might almost be taken for the comb of the *Apis dorsata*, for it is remarkable in size as compared with ordinary worker and drone comb. Now, while we admit the possibilities of rearing these large bees, we somewhat question whether any thing would be gained unless, perhaps, in the one item of their getting honey from red clover. Cheshire says that there is harmony in nature, and that all flora and plant life seems to be specially adapted for the ordinary hive-bee, and in his work he furnishes abundant proof. It is remarkable, but nevertheless a fact, that, with perhaps the single exception of red clover, hive bees are able to reach in some manner the nectar in every blossom of every sort. Cheshire goes on to say, further, that the ordinary hive-bees are of just the right size for making the quickest flights, and, therefore, carrying the largest amount of honey. A larger bee, while it might carry a larger load, would be so "logy" that it would in reality carry much less honey during the day or season, and, besides, a larger bee would require a corresponding change in plant life. Let us give an illustration in the line of mechanics. Take, for instance, the ordinary bicycle. The first wheels were 32 inches in diameter; then by a sort of tacit agreement they were reduced to 30 inches; then again to 28; a few jumped still further down to 26. But very soon the whole line gravitated back to 28 inches as the standard.

How much more perfect are the works of nature! Therefore it would seem that the size of the hive-bee is now and has been for centuries just right to secure the largest amount of honey.—Ed.]

SECURING COMB HONEY.

HOW IT IS DONE

By S. F. Newman.

Brother Root:—I have been requested, as you will see by the inclosed letter, to give my method of operating to secure a crop of comb honey. My plan may not be new; but if you think best you may give it a place in your journal.

It is needless to say, that, to be successful, all colonies must be strong at the beginning of the surplus-honey season. Until that time I confine each of my colonies to such a number of combs as will enable the queen to keep *each filled* with brood and eggs, except a little space in the upper corners of each. When my bees begin to gather honey from white clover, if the requisite number of combs are not filled with brood (each bee-keeper must determine for himself what that number is), I add to my strongest colonies combs *filled* with hatching brood taken from other colonies, until each contains the number of brood-combs to be used during the surplus-honey season.

When a colony swarms I hive the new swarm on empty frames — the number used depending upon the strength of the colony — and place it on the old stand, removing the old colony a few feet away. After the new colony gets well started in building combs, say in two or three days — the length of time depending upon how rapidly honey is being gathered — I remove all the frames and new combs, except three, and supply their places with combs *filled with hatching brood* taken from the old colony, being *very* careful to remove all queen-cells from the combs thus used, and at the same time I remove the surplus from the old colony, and place it upon the new. I never require the new colony to build more than three new combs; and as the season advances I reduce the number of combs to be built to two, and, toward the close of the season, to one. I furnish the old colony with empty combs to take the place of the brood-combs removed.

By this method nearly all the work of the new colony is thrown into the surplus-chamber, all the working force is retained in the new colony, and it is kept at its full strength by the hatching brood that was supplied from the old colony.

After the new colony has been supplied with frames of brood from the old colony, the old one should be removed some distance away from the new, thus throwing the whole field force of bees into the new. If the season is favorable, the old colonies thus manipulated will become strong enough to winter well, and, with their young queens, will make the most profitable colonies for the next season's work. If some of the old colonies, at the close of the season, should be found too weak to winter well, they can be reduced in number, and strengthened by uniting.

By this plan of operating we secure all the advantages of non-swarming, and *more;* for we keep the whole working force in the new colony, and we also get the benefit of the extra energy always exerted by bees that have swarmed.

If I have not made my plan sufficiently plain I will gladly answer, through these columns, any questions that may be asked.

Norwalk, O., May 22, 1894.

[Mr. S. F. Newman is a bee-keeper who is very successful in getting large averages from his apiaries, even in poor seasons. The proof of the pudding is in the eating. and on that basis it may be well to read with care Mr. Newman's article above.

Perhaps a little explanation may not be amiss at this time as to who this Mr. Newman is, for we are going to let out a little secret here. Some years ago, when the honey canard (to the effect that it was possible to make comb honey by filling the combs with glucose, and capping them over with appropriate machinery) was going the rounds of the press, and it seemed utterly impossible to follow it up and correct it, Mr. Newman conceived this unique idea; namely, to get up a yarn of the same ilk, containing a semblance of truth, and yet so ridiculous that no one would believe it, or any story like the comb-honey yarn. Well, this is the story that Mr. Newman started, that flew like wild fire all over the country, for he wrote it up in good shape in regular reporter style: A certain Yankee inventive genius in the East had discovered a process for making artificial eggs that could not be told from the genuine. Reporters had tested them, and found them to be as good eating as *real hens'* eggs. The "reporter" was frank enough to admit that the egg-man had not quite succeeded in getting eggs up to that perfection where they would produce perfect chickens; but such eggs, when placed under hens or in hatchers would bring forth, in three weeks' time, chickens *without any feathers*. Well, you all know how this story went the rounds of the press; but, contrary to Mr. Newman's expectations, many did believe it; but the great majority doubted it; and then they began to wonder if the comb-honey yarn was not of the same stripe. Although the results obtained were not all that Mr. Newman hoped for, yet the story did great good in causing people to discredit not only artificial-egg stories, but comb-honey yarns, and every thing of the kind. Intelligent and thinking people knew perfectly well that the principle of life could not be put into an egg by any human skill; and at this time, probably, no one believes in it, and we hope that very few really believe that comb honey is manufactured.—ED.]

VARIOUS ITEMS FROM AN EXTENSIVE BEE-KEEPER.

LIGHTING BEE-SMOKERS, ETC.

By N. D. West.

Elwood says a good word for the Crane smoker for the bee-keepers' benefit, and says, save the charcoal, and light with a paper, etc. Well, that's good. What *he* says is worth remembering. But just tell the buyer to use kerosene pure—plenty of it, on some kind of chips or rotten wood. Light it with a match. It will be as easy as lighting a lamp when you learn how. Add sound maple wood, but don't put out the blaze until the wood is on fire. Charcoal is good for the foundation fire. but I use elm chips that I get at the barrel-factory. These come off the end of the staves where they chamfer for the barrel-head—not dust, but chips. This lights very easily by the aid of kerosene. and makes a good smoke, ready to use quick; and if I do not have a long job of work to do I use nothing more; but when it burns down a little I put on sound maple wood well dried. if I want to do business by the day. Boys, be careful, and don't set any thing afire that you don't want to burn, when using bee-smokers.

THE EIGHT AND TEN FRAME HIVES.

Tell Dr. Miller I feel sorry for him about building those new hives. If he didn't know so much about the bee-business he wouldn't have half so much trouble about deciding on what hive to use. I wish I could help him out, but I can't. I have been using both 8 and 10 frame hives side by side for 20 years. and not less than 100 of each kind. I think that, during that time, each has had its advantages. The ten-frame hive, however, with extra dummy-boards, is something like a harness made large enough for a good-sized horse, with buckles and straps so made that you can buckle it up to fit the size of smaller horses too. By using both kinds of hives I always have honey enough in the spring so that, by dividing it up some, all hives will be supplied with honey. I have, in times past, hived swarms from the 10-frame hives in the 8-frame, using two board dummies so but six frames of combs were used. We get larger swarms from the larger hive, but not so many of them; then we put sections over the new swarms right off, or as soon as the queen was located below. I aim to get all of the box honey possible from these young swarms; and from time to time, when we have the hives opened I add a frame of brood, or a comb empty, or a comb of honey—any thing that we have on hand to fill up the hives and not interfere with the bees' working in the boxes. After the honey season is over we look over these small hives; and all that do not have honey enough to last until spring we supply by going to the 10-frame hives that cast the swarms, and get two frames of honey and place them in the 8-frame hives in place of the dummies. Then you see both kinds of hives have 8 frames.

Again, sometimes we do not look over all, but winter some colonies on the six frames, and give them honey in the spring, after they are set out of the cellar. I will say right here, that, for the past ten years, I have made only the 10-frame hive until recently. I have made 200 standing-frame hives for a special purpose. I have had but two years' experience with these, and will not speak more about them.

REASONS FOR NOT USING THE 8-FRAME HIVE.

Some of the reasons for my not making the 8-frame hive any more are, I get less box room on top; 2. I have more room in the 10-frame, and use as much or as little of it as I need, and, as a rule, in most places, use but eight frames when the boxes are on; 3. When we open the brood-hive in the spring, before boxing time, the hive being one or more frames short, we have plenty of room to move the frames sidewise by taking out the dummy-board, which I always use, and *fixed frames* by all means. I have used these two for 20 years; 4. Many times we find one hive short, with honey or brood, and we want to supply this need, and when we do not have a frame of honey or brood at hand filled solid, as the case may be, to supply the need, we put in two frames half full, and the 10-frame hive will receive them, while the small hive would not. We can add or take frames from the large hive more easily than from the small hive, and disturb the bees and brood-nest less. The Langstroth frame seems to be the standard; but I use a frame about the same size, only deeper, 14½ long by 10¼ deep, inside measure; and I make my hives with a rim, so as to make them so nearly square on top that I can turn my crates either way, and it takes two crates of sections to cover a hive; and to young swarms, or swarms not strong enough to use the whole hive, use only half of it at the time of first boxing.

IMPORTANCE OF SIDE PLAY FOR FIXED FRAMES.

I don't forget Dr. Miller, when he was at the World's Fair, at the bee-convention, how he acted out "Sockery," who set that old "plue hen," and how he got on top of that "parrel," and the head "proke," and let him into the "parrel," and the barrel was so full that he could not get himself out of it, nor could his wife pull him out; how the nails stuck in him so that it made him scream "dunder und blixin," and she really had to saw the barrel off of him. You see, he was in that barrel about as tight as I have seen fixed frames in a bee-hive when the last frame was crowded in tight, without any side play, so that, when the bees get every thing glued up solid, the frames were surely *fixed*. So it would want Dr. Miller and his wife, with a crowbar and handsaw, to get them out; and if the bees were as cross as some I have seen, I guess he would "dunder und blixin" again. So, Dr. M., I want a little wider hive than would be required for ten frames; exact spacing, so as to allow enough for frames swelling, bits of wax, etc.; in fact, I like about ¾ inch between hive and follower, and a follower, every time, made of ⅞ lumber. Thin lumber will spring when a thumbscrew is screwed tight enough against the follower to set the partly closed end frames so tight together that it will squeeze the bits of wax out from between them in warm weather, and thereby save scraping it off. The wax will get there more or less if the frames are not kept wedged or screwed together, which is not desirable at all times. I prefer a wooden thumbscrew, notwithstanding they are in the way some, but not so much on some of my own hives, as mine have a rim 1⅛ inches wide, 5 inches down from the top. I make my caps of thin lumber, 8 inches deep; these caps resting over the hive 5 inches give me 2½ inches room above the frames; and just level with the top of the frames a handle is cut through the cap with a wabble saw ⅜ by 4 inches, and a wire screen is nailed over the hole inside of the cap. When I carry bees into the cellar in these hives I leave the cap on; and quilts made out of hop-baling are laid over the frames, with a stick ½ inch square laid under the quilt, to form a bee-passage. The moisture escapes through the quilts, and passes out of these ventilators into the cap.

Middleburg, N. Y.

[We will explain to our readers that Mr. N. D. West was present at the North American Convention at Chicago, last year, and took considerable part in the proceedings. After one of his remarks, one brother said that Mr. West, in his opinion, talked like one who had only a few colonies. Then he went on quite elaborately to show why friend W. was wrong and why *he* was right. At the close of his remarks some one asked how many colonies Mr. West had, and he very modestly replied, "Four hundred in four out-apiaries." This, of course, raised quite a laugh on the other fellow. We may explain further, that Mr. West is one of the bee-keepers on whom we called on our first bicycle-tour, and one from whom we gathered some ideas. He is quite correct in urging that there should be side play in hives designed for self spacing frames; and principally for that reason our eight-frame hive from the start was made wide enough to take in a dummy, and a little side-play room besides. The dummy is first to be removed, and this gives room enough to shove the frames over, enabling the operator more easily to get out the first frames.

With regard to thumb-screws, possibly if we were using closed-end frames, *a la* Heddon, we should find them a necessity; but after håving tried them quite extensively with and without, on the eight-frame hive, with self-spacing Hoffman frames, we prefer, as does Mr. Hoffman himself, to dispense with their use.—Ed.]

WHY THE EIGHT-FRAME IS PREFERRED.

Friend Root:—I should like to give my reasons for using the 8-frame L. hive in preference to the 10-frame. I am a comb-honey producer principally; but when I wish to produce extracted honey I give the queen the two lower stories of the 8-frame hive, and tier up as high as necessary. The problem before me is, to get the honey from my field with the greatest ease and least work possible. Why is it not just as well to work 150 good young queens in 8-frame hives as to work 125 in 10-frame hives, provided you can do the work with greater ease in lifting, have fewer unfinished sections, etc.? Why make such an effort to get and maintain a large amount of brood from one queen in one large hive? This would do for one who was compelled to keep only a limited number of colonies; but what the bee-keeper wants is to get the honey from his field; and for my part I would rather do it by working a few more colonies in 8-frame hives, even if the 10-frame men are correct in their conclusions, which I am inclined to doubt. I discarded the 10-frame hive some years ago. I should like to ask Bro. Hatch what he thinks of this phase of the question. HARRY LATHROP.

Browntown, Wis., May 3.

[The average man can lift the eight-frame hive, and perform the other needed operations, with much greater comfort than with the ten-frame. It is true, that the latter would weigh only a fourth more; but you know it is sometimes the last straw that breaks the camel's back.

When we come to talk about large and small hives, the eight-frame may be enlarged to 16 or 24 Langstroth frames, or cut down to only 8, which is as small as it is practical to have a single brood-nest. A ten-frame costs *proportionately* more than the eight, for the reason that wide cover-boards are much more difficult to get. Standard-width lumber makes covers for the eight-frame, but not for the ten-frame. After all, it is not the convenience of the *manufacturers* that is to be consulted, but the pocket-book of the *purchaser* who pays that manufacturer the difference in expense.

Mr. N. D. West, in the letter above, seems to be in doubt which hive he would prefer; and the principal reason for his giving a little bit the preference to the ten-frame is on the principle that a large harness will fit a small as well as a large horse. That is true; but the case is hardly parallel, inasmuch as the ten-frame hive does not begin to come up to the requirements of a large colony, and the ten-frame is too large for the small colony.

There is one point that should be considered, and quite an important one, and we believe it has not been fully touched upon by any of the correspondents thus far; namely, that the bees will fill out their sections better *directly over* their brood than over a frame or frames of honey. The average Italian colonies in ten-frame hives are quite apt to put honey in the two outside combs. When the supers are put on, if the bees go into the sections they will build out and fill those directly over the brood, leaving the outside row or rows untouched, or only partially filled out. On the other hand, a good queen and good management will secure the filling of all combs of an eight-frame hive, more or less, with brood. Hence the eight-frame super, for this reason, will be better filled out.

Still another point is, that the eight-frame is far nearer the standard width than the ten-frame L. hive. The arguments that were advanced years ago in favor of the smaller hive were so great, and the pressure upon manufacturers was so strong, that now the eight-frame is the leader in the North. Whatever may be said of the relative merits of the two widths of hive, no bee-keeper can reasonably afford to have two sizes in his apiary. One can not be set down on the other. In fact, it would be almost as bad as having two sizes of frames in the yard. A ten-frame cover would fit an eight-frame hive; but the reverse would not be true. An eight-frame super could be put upon a ten-frame hive-body; but a strip of wood would have to cover the open space.

Lastly, the 8-frame is a nice medium between the very large brood-nests and the very small or shallow brood-nests.—ED.]

EIGHT VERSUS TEN FRAME HIVES.

I am in favor of ten-frame hives, by a big majority, for this locality, for extracted honey, and I want them three stories high. When I commenced here in 1886, eight-frame hives and black bees were recommended as being best for this country. I experimented with ten-frame hives and Italians, and found the ten-frame hive and Italian bees gave much better results in *honey*, in this locality, and I adopted them before I dreamed of queen-rearing. I find that a ten-frame hive gives room for an abundance of honey for winter. I have never seen a hive have too much honey in the spring; but I have seen some, and heard of a good many that had too little. I don't like a hive as narrow as an eight-frame hive, three or more stories high; a ten-frame hive three stories high is large enough for ordinary times, but we can add another story without its getting top-heavy.

Port Orange, Fla. J. B. CASE.

[In the South the 10-frame hives seem to be in the majority, and have the preference. In the North the 8-frame enjoys this distinction.—ED.]

SIZE OF HIVES.

HOW AND WHEN THE TEN-FRAME HIVE IS TOO LARGE AND TOO SMALL.

By J. F. McIntyre.

All of my bees are in ten-frame Langstroth hives; and, seriously, I want to say that a ten-frame L. hive is either too large or too small. Let me explain.

If a queen-excluder is put over the brood-chamber, and the queen confined to one section, the bees can not breed up to over two-thirds of the capacity of a good queen, and about half of the surplus bees that go to make a swarm or surplus honey are cut off. If two sections are used for a brood-chamber, the upper section is only half filled with brood, and the other half with honey; and as soon as the queen passes the swarming climax she is crowded out of the upper section, with honey; consequently this upper section must be extracted before all the brood has hatched; and if a bee-escape is used, the bees will not leave it. There are many other things which make it inconvenient, to say the least, to change this upper section from a brood-chamber to a super, in the middle of a honey-flow. Two eight-frame sections are about right for capacity; but if we use two sections for a brood-chamber and two supers, the shape is not good. It is too high and narrow. The brood will occupy 12 combs—6 in each section—and its shape will be about 17 inches high, 16½ long, and 9 inches wide. Rambler uses two brood-chambers and one super; and after the honey-flow commences he changes the upper brood-chamber to a super. He makes a lot of honey in this way; but the brood gives trouble in using the bee-escapes. I can not use the bee-escapes with one ten-frame brood-chamber and one super, because the brood-chamber will not hold all the bees, and they will not get out of some supers in three days. Dadants are successful with the bee-escape because they use two shallow extracting-supers and such a large brood-chamber. I am taking Mr. Root's advice, and trying a few hives with larger brood-chambers. I have increased the depth of the ten-frame L. brood-chamber so the frames are 12½ inches deep outside. I have also cut a few L. brood-chambers down, so the frames are 7 inches deep, outside measure, and will use two sections for a brood-chamber, and two for a super. I shall expect these extra large brood-chambers to raise more bees, swarm less, and make more honey; but whether the advantage will be great enough to justify a change from a standard frame, remains to be seen. I think the large frames will produce a few more bees than the two-story seven-inch frames; but every other advantage is on the side of the seven-inch.

Fillmore, Cal.

CALIFORNIA ECHOES.

By Rambler.

Very good idea, Bro. Root—that fellow with a smoker-head in your advertisements. Why not get up a combined hat and smoker, and work the bellows with the jaw? Men might not make it work. Women would.

Yes, friend Trego, I shall have to tie to Dr. M.'s washing-recipe even if he does poke fun at me. The reason is, that there's always more or less of a five-gallon can of kerosene in my back room, while that wash-a-line is far, far away.

That's so, Dr. M. It may be that the old black comb has more of an aroma to it. If so, it probably comes from the young bees' swaddling-clothes that are left in the cell. So if you swallow a few raw larvæ it may enable you to get my theory down.

Mr. Geo. W. Brodbeck is rejoicing over something of a honey-yield this season, while the rest of us are having a blue time of it. His location is at such an elevation that he can look down upon us in the valley. That elevation has had more of a rainfall, hence the better yield.

Bro. Hutchinson looks very nice in that bee-veil and immaculate shirt-front, in the last *Review;* but let me tell you there are bees in this country that would slide under that veil and string by the score. I believe a card properly adjusted around the neck is safer and simpler.

A well-known Southern California bee-keeper twice attended the mid-winter fair, and chaperoned, or was chaperoned by his wife and a schoolma'am. He writes now that he would not go again, even if his fare is paid both ways. We can vividly imagine the poor fellow's condition, and further comment is unnecessary.

Mr. C. O. Perrine, the man noted in times past as a honey-dealer, and who practiced migratory bee-keeping up the Mississippi River on a barge, is now a resident and land-owner in Riverside, Cal.; and though the snows of many winters whiten his head, he is still an active business man. At present it is orange-orchards and not bees.

Migratory bee-keeping is practiced to some extent this year. Many apiaries have been moved to the vicinity of Riverside and the orange orchards. There is a chance that too many may move in and overstock the pasturage. Atmospheric conditions are favorable for a yield of orange honey. Foggy mornings prevail, and that is the right condition.

There is a great amount of maple syrup upon the California market, in small tin cans. A taste of it is enough to show that it is maple only in name. That is where glucose comes in again to rob an industry of good prices, and bring discredit upon one of the most healthful and palatable products of nature. But for all that we have never heard that the producers of pure maple products ever made much of a fuss about it.

TARIFF ON HONEY.

A BOMB FROM A "FREE TRADER;" AN INTERESTING ARTICLE.

By W. G. Hewes.

On p. 314 your correspondent Mr. Elwood, of New York, attacks that clause of the Wilson bill which proposes to lower the duty on honey. He seems fearful that, stored away in some corner of the earth, there is an immense amount of honey only awaiting a reduction or abolition of our tariff duties, to be dumped upon us in an overwhelming flood. We are informed by Mr. Elwood, that California and the South will especially suffer by this inundation. As to California, I have noticed that the prices for our product are governed entirely by our own supply. The price is bad when the season is good, and the price is good when the season is bad.

In one respect the abolition of tariff duties on honey would be a Godsend to many California apiarists, as the large area in virgin brush on Mexican soil offers greater promise of success in bee-keeping than do many of our own localities where much of the honey-producing flora has been destroyed in making room for orchards and wheat-fields. It would be Americans, not Mexicans, who would make the profits by keeping bees on Mexican soil; for, while we have many Mexicans in California, it is seldom that one engages in apiculture. Persons of Spanish descent seem to find it more congenial to mount a horse, and, with a pair of big spurs, prod him, than it is to go into an apiary and have the bees prod them.

I do not know what the honey resources of the Central and South American States are; but be they ever so great, unless Americans or Europeans go there to develop them, we are not liable to be drowned in honey from that source. But should those countries produce a large surplus of honey, London, not New York, would be its destination; for when any of the countries of the world have a surplus of any thing for sale, England takes the bulk of it, whether it be oranges or wheat, cattle or cotton, sealskins or jewels, gasoline or canned kangaroos. It is either "mighty are Englishmen," or "great is free trade," for the whole world seems to be delving and sweating to supply free-trade Englishmen with the necessaries and luxuries of life.

If the Vermont State Bee-keepers' Association know what is good for them, instead of sending in protests to Congress about the duty on honey being reduced for fear that Canada may send into their markets a pound or so now and then, they will petition that honorable body to place tinplate and lumber on the free list, as the excessive duties on those articles under the McKinley bill make our honey-cases cost altogether too much; and if, to avoid that tax, we engage largely in the production of comb honey in those years when we have bountiful crops here, Vermonters may find their markets flooded with as fine honey as they can produce, and at only 8 or 10 cents a section.

Rambler informs us (page 372) that one bee-keeper in Ventura Co., Cal., produced more honey last season than the whole State of Vermont. It may be some consolation to the Vermonters to know that Mr. W. T. Richardson (the person spoken of) is himself a Vermonter; at any rate, if I am mistaken in this I am sure his better half is. They are both from New England. By the way, Mr. Richardson has, I think, during the past ten years, produced more honey than any other bee-keeper in the world, during that space of time.

This talk of mine, of California engaging very largely in the production of comb honey, is not altogether idle chatter; for selling extracted honey at 4½ cents per lb., and giving away with each 117 lbs., not a cheap chromo, but a box and two tins which together cost us, the past season, 90 cents, has created such dissatisfaction among bee-keepers that their growls can be heard rumbling through the hills from San Diego to Tehachipi. For my part, the thought that I am being taxed for the benefit of persons, some of whom may already have a thousand dollars where I have ten cents, is more annoying than the bites of fleas, and it has already started my buzz-saw to humming as it cuts out the supers necessary for the production of comb honey. These "protected" lumbermen, tinplate manufacturers, and others of their ilk, are the modern representatives of the knights of old. The knights, for assistance in wâr, were privileged by the king to roam the country, stealing oxen and maidens, and, incidentally, killing people. The knights of to-day, in payment for supplying the funds by which the politicians hope to keep themselves in office, are privileged by them to fatten off the people by taxing them.

LITTLE RAIN, AND CALIFORNIA PROSPECTS POOR.

Not since 1877 have we had a winter with so little rain as the one just past. In consequence, the hay and rain crops are complete failures, while on a square mile there is not grass enough to maintain one animal throughout the season. Horses, cattle, and sheep are being driven from the country by the thousand to the counties north of us, where a good system of irrigation permits of large fields of alfalfa being grown.

It is reported that, out of one band of horses turned into one alfalfa-field one evening, 80 died the first night. To reach the alfalfa-fields they had traveled for several days with but little to fill the aching void in their bellies but pure air and mountain scenery. The alfalfa tasted so good after this diet, that the 80 aforesaid ate too much. Animals passing through these parts now, and depending for their sustenance upon the roadside grasses, will have a harder time than the "Industrial Army" in its late passage through Iowa.

Bees, of course, are not booming. My honey-tanks are used now as receptacles for water, and my extractor rides around on a sled, supplying liquids to the roots of my fruit-trees. In truth, our honey prospects are now resolved into the following mathematical problem: If in 1892, with 9 inches of rain, we got no honey and lost more than half of our bees, what proportion of our bees shall we lose in 1894, when we have had but 5 inches of rain? The loss will certainly be very great where feeding is not resorted to, and many bee-keepers assert positively that they will not feed — the bees may all die first. As a neighbor puts it, "I have waited three years for a crop of honey, and now I'll be blowed if I feed it back."

Newhall, Cal.

BEES REMOVING EGGS.

LAYING WORKERS. AND HOW THEY ACCOUNT FOR THE PRESENCE OF EGGS IN THE ABSENCE OF A REGULAR QUEEN IN QUEEN-CELLS.

By Willie Atchley.

I see Rambler asks where the egg came from that he found in a super. This question I saw on page 415, May 15. Well, Mr. Rambler, I am prepared to tell you that, in my opinion, the bees never carried that egg there. A few summers ago this same question was up; and as the apiary has been my schoolhouse, I thought I would investigate this thing. I found an egg in the upper story, the same as Rambler, and have seen them more or less all through my apiary work of 12 years. Well, I then believed, as others, that the bees carried the eggs and placed them there. To prove or disprove it, as the case might be, I have taken some of those queen-cells with eggs in them, and given them to queenless colonies; and *every* time that I succeeded in getting the eggs saved I found they *all* hatched drones; and never, in all the cells I have yet tried, have I seen any thing but drones hatched from them. "Well," thought I, "you surely ought to have more sense than to select a drone egg (or an egg laid for a drone), *every* time, to raise a queen from."

By very careful and close watching I have found that all such eggs are deposited there by workers—I mean laid by workers. I know that almost the whole bee-keeping world thinks that workers *never* lay while they have a laying queen present; but I have found this not to be the case. I also find that the first place a laying worker wants to lay inis queen-cells or queen-cell stubs. It might astonish somebody for me to say right here that I have counted *more* than fifty eggs laid in queen-cell stubs by laying workers; but it is true, nevertheless. If there are no queen-cells or queen-cell stubs, the laying workers will then use the drone comb first, and, lastly, they will lay in worker combs; and I have seen eggs so evenly deposited by laying workers that their work could not be detected till the larvæ were sealed.

Well, I have wandered away from my subject in talking about laying workers. But if any one will prove to me that the eggs found where no queen has been produce either queens or workers, then I will give it up. But in the remark of mine to which Rambler refers, I was thoroughly satisfied that bees *never* carry eggs from one cell to another, nor to any part of the hive, nor anywhere else, for that matter, and deposit, with the view of raising queens or workers; and I am now satisfied that such is not the case, nor are there any exceptions to this rule. So, Mr. Rambler, the next time you see an egg in the combs, queen cell or not, where you are *sure* no queen has been lately, please take good care to see what kind of insects they make; and if you get a worker-bee or a queen, then I am fooled. I have often read where some people have been surprised and troubled to know where the bees got eggs to rear a queen, when no queen, nor eggs from a queen, had been in their hive for a month. They did not wait to see what the cell would deliver, as they probably did not know by the looks of the cell that it was a drone, and would affirm that the bees had a queen-cell, etc. Well, a great many such things come about by people not thoroughly investigating such matters, and go the rounds as facts, while the parties are perfectly honest and conscientious. It is a mistake, that the bees reared a queen from such a cell. Remember that one can tell a cell that is going to hatch a queen, from one that is going to hatch a drone, by its shape, etc., as a drone-cell will be rather smooth (or a queen-cell with a drone larva in it); and I may add, right here, that the drone as often dies as hatches, as it seems, at a certain age, he coils himself just as far from the food as possible, as though it did not agree with him. This I notice a day or two before the cell is sealed, and the drone larva will keep coming up away from the food, and the bees will keep extending the cell to cover him, and run out a great long ugly cell. Such drones do not often hatch.

RAISING QUEENS.

I believe I have somewhere read a request that I give my improvement on rearing queens or starting queen-cells by my method. Well, I will suppose that all read my plans of grafting, etc., in GLEANINGS, last year. I have found that, by careful selection of the larva used, say about 8 to 12 hours after it hatches from the egg, or, to make it plainer, just as soon as a little bit of food can be seen about it, so I can tell it has hatched, I use it. Then I select a good strong prosperous colony, take away *all brood* and queen, and let them so remain on combs of honey till they mourn, as soon as the cover is raised, which is usually 12 to 24 hours, and show signs of restlessness; then I take the small larvæ as above from my breeder; have cells all ready; sit right down by the hive, graft the cells, and place them on the combs just under the sealed honey, or, say, half way down the frame, and give a little extra space. I have often 19 saved out of 20, and the finest, evenest lot of queens I ever saw, natural cells not excepted.

Beeville, Tex., June 1.

[You have given us a new theory or solution of this problem, accounting for the presence of eggs when there is no queen present. From the facts you relate, it would seem you are right. But sometimes the best of observers are led to a wrong conclusion; we should like, therefore, to hear from our queen-breeders on this question—particularly from Mr. Doolittle. —ED.]

CRAMPS IN QUEENS.

FEAR ASSIGNED AS THE CAUSE.

By J. B. Case.

I used to be bothered a good deal by queens getting the cramps, when caging them. Sometimes they would appear all right when put into the cage, but would keel over and lie on their side motionless for several seconds, without showing a sign of life, then begin to move their legs, and then would drag themselves around feebly, but would soon be all right again, and as spry as ever. I was afraid they might be injured, and returned several to their hives until their eggs hatched and larvæ were well grown. Several times they would be a long time in recovering, and I had a few, perhaps three or four, that died. One, at least, that I returned to the hive never recovered.

I think *fear* has a good deal to do with the "cramps," as, in my experience, the queens that are hard to catch are more liable to the affliction than others. Queens that are picked up quietly, and quickly placed in a cage, seldom if ever show any sign of "cramps," while if a queen is chased around, and frightened, then held some time before caging, she is quite apt to show more or less of the symptoms.

As I have caged some 600 queens this spring, with but one showing any sign of cramp, and that was owing to my carelessness, as I was in a great hurry, I will tell how I do. I open the hive as quietly as I can, when I find the queen, set the frame so I can pick her up, take the cage in my left hand, and spring up the wire cloth with the forefinger, then pick the queen up by the wings, with thumb and forefinger of right hand, bringing the cage close to the queen as I pick her up and drop her into the cage quickly and gently. Very simple, is it not? But sometimes there is a hitch. Quite often the frame has to be held with one hand while the queen is caught, and then while the other hand is getting the cage ready the queen gets terribly frightened, and struggles frantically to escape and goes off into a kind of fit. Under these circumstances, as soon as I have caught the queen by the wings with thumb and forefinger I slide the second finger out under the queen so she can stand on it. When every thing is "lovely" she has solid bottom under her, and seems to lose most of her fear at once. I have carried queens around for some time when held as above, and have never had *one* show a sign of the cramps while caging.

Queens fly but little, and are seldom out of the hive. In their normal condition they are surrounded by a throng of friendly bees, in partial or complete darkness. From this peaceful state comes a rude awakening; her home trembles as the hive top is wrenched off; smoke pours in; the comb on which she was peacefully and no doubt happily employed is raised out in the glare of the daylight; amid the confusion she tries to hide, but is chased around, rudely taken up by her wings, by a master she has never seen. No wonder fear fills her heart, as she feels all hope is gone, and "heart failure" results, or she "swoons," or gets the "cramps."

There are lots of bees handled in this or a worse way. I wonder how many people would die of "heart failure," or "swoon," or have "cramps," if they were used as ruthlessly and unnaturally.

My daughter Edna, who assists me in the apiary, aged 14, caged 25 queens by half-past ten, without assistance. Last night was very cool, so she could not commence until nearly 8 o'clock A. M. Only 10 queens were in hives marked ready; the others had to be hunted up.

So far we are having the best season I have known here. I took 200 gallons from 50 colonies May 14 and 16, and now they are nearly full, and ought to be extracted at once, and still are hard at work. I am suffering from a bilious attack to-day, and have to keep out of the sun, though we are pushed by our work.

Port Orange, Fla., May 22.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

HOW TO PREVENT DRONE COMB BEING BUILT.

Question.—In the production of comb honey, where a first (or prime) swarm is hived on comb-foundation starters, say two or three inches in depth, and with sections on top filled with full sheets of foundation, what is the best method of preventing the building of drone comb in the brood-chamber?

Answer.—Under such circumstances as the question describes, prime swarms are not very apt to build drone comb, as drone comb is very largely built the first season for store comb. In other words, bees build very little drone comb the first season after being hived, only as they get in advance of the queen in comb-building. If they build comb faster than the queen can occupy it with eggs, then they keep on building comb, the same as they would if she kept eggs in the cells as fast as built; but instead of building worker comb they change the size of the cells to those which are the most economical for storing honey, which are of the drone size. These cells are filled with honey, so do very little harm the first year; but the next year, as the honey is consumed from them, the queen lays in them, and from this comes a horde of useless drones, or such bees as produce no honey, but constantly consume it. The above is applicable to a swarm of bees in box hives or in trees, where they can do just as nature prompts. But it will be seen that the questioner has placed his swarm in a different state than would be one in a hollow tree, in that he has put on sections filled with foundation, which foundation will be drawn into comb as fast as the bees want room to store honey, as well as to remove a large part of the bees from the brood-chamber, and for this reason the bees will very rarely build comb in the brood-chamber faster than the queen will fill it with eggs, if the queen is a good prolific layer, as she should be; and the result is, sections filled with honey, with very little, if any, drone comb in the brood-chamber below; and, as Bro. Hutchinson and I believe, the brood-chamber is filled with comb more cheaply under such circumstances, and more honey secured in the sections, than where the brood-chamber is filled with frames full of foundation. Now, if, in addition to the above, the brood-nest or brood-chamber is contracted to two-thirds its usual size when the swarm is hived, we are almost certain not to have any drone comb built, for this gives an additional security against the bees getting the start of the queen. But suppose a frame or two of drone comb should be built, this can be removed from the hive the next spring, and frames of worker comb substituted for it, when this drone comb can be melted into wax, or kept for the production of extracted honey, using it in an upper story over a queen-excluding honey-board. I have practiced this method for years, and think it pays me better than to buy foundation. I am well aware that there are many of our very best bee-keepers who do not agree with me here, but would say, "Fill the frames full of foundation every time;" but when I answer any question, I, of necessity, must answer it from my own standpoint; and if any reader thinks other than I do, he has perfect liberty to follow the plan given; test it to know that his different way is better, or let it alone altogether. I have never seen where there was any occasion to feel hard toward a brother or sister bee-keeper who honestly differed with me in opinion, for there is room enough for all.

BEES EXPELLING WATER FROM SWEETS.

Question.—Some have asserted that bees have the power of expelling water from diluted sweets, when on the wing, etc. Is there any truth in this assertion? and has there been any gland discovered whose function, resembling that of the kidneys, seems to be that of separating water from honey?

Answer.—I think the assertion is a mistake, for there is no connection that I can find between the honey-stomach of the bee and the intestines of the same, except by way of the mouth. That bees have the power to separate and expel the watery portion of diluted sweets while in the honey-sac, is a proposition not supported by any conclusive evidence, so far as I have seen. The discharge in the form of spray, which myself and others have seen in the morning sunshine, when bees were carrying sweetened water from feeders in the open air, and when at work during an excellent honey-flow, was most probably caused by a well-filled honey-sac pressing on the lower intestines, thus discharging their watery contents. After carefully watching this matter for years, I can believe this spray to be only thin excrement; yet I am aware, as was said by one in the past, "There are more things in heaven and earth, Horatio, than are dreamed of in your philosophy." Is there any reader of GLEANINGS who can tell us more about this subject?

SHADE FOR HIVES.

Question.—What is the best method of shading hives from the sun?

Answer.—Various methods have been advanced, such as grapevines, sunflowers, trees, shade-boards, etc., each having its own good points. Trees have one advantage over every thing else, in that they shade the apiarist as well as the hives; and what bee-keeper is there who has not wished for a shield from the sun for himself when working for hours on a July or August day when the mercury was up in the nineties in the shade? While this is so, yet trees, as a rule, are apt to give too dense a shade; and I am satisfied, from years of close observation, that, so far as the bees are concerned, they do much the best right out in the rays of the sun the whole year round, when the question is dense shade or no shade. For this reason I prefer to have a shade where I can go once in a while when becoming greatly heated, and either paint the hives white or use a shade-board for each hive, letting them stand in the sun. Lately, in making some new hives I have taken no pains to make the cover water-tight, but have made a shade-board to project from two to six inches around the top of the hive, the six inches being to the south, while the north side has a four-inch cleat nailed to it, thus giving a pitch to the south, this causing the rain to run off easily, while at the same time it gives a good circulation of air over the top of the hive, so that the heat never drives the bees out of the sections or causes the combs to melt down, with the hives standing in the full blaze of the sun in the hottest of weather. Where I formerly covered the tops of my hives with tin, or made tin-roofed hives, I now cover this shade-board with tin, and in this way no water ever touches the top of the hive. After a use of them for two years I am much pleased with them. The wood material used for the shade-board is ¼-inch stuff, thus making it very light to handle; and as an insurance against the wind blowing it off, I put a common brick on each; and for two years we have had no winds strong enough to stir a single one.

BEGINNERS QUESTION BOX

BY E. R. ROOT.

J. W. M., of Ark., wishes to know whether the combs in box hives, from which the bees have died, will be suitable to transfer into brood-frames. *Ans.*—Some of them; but the majority of them will be crooked, and had better be made into wax.

W. F. A., of Pa., desires to know how white wax is made. *Ans.*—Generally by the use of chemicals. See "Wax" in our A B C book. It may also be bleached by leaving it exposed to the rays of the sun, so as to be practically white. If the wax is left in the solar wax-extractor long enough it will become white.

J. W. B., of Va., writes: "I have some bees; I do not know what they are. They are very small. Some of them are as black as coal, and some have one yellow band." *Ans.*—There seem to be two kinds of black bees in this country—one a sort of brownish bee, of good fair size, and another coal black and smaller. The bees you have are doubtless of the latter kind, with a very little Italian blood mixed in, or what we should call very dark hybrids.

J. W., of N. Y., asks: 1. What is the legal distance for a hive of bees to stand from a street or highway? 2. How close can the bee-entrances be for a house-apiary, considering the welfare of the bees, and economy of space inside the house? 3. What point of the compass is it best for the entrances to face? 4. Will a wall of inch boards, two thickness, with paper between, be any injury to the bees in summer? *Ans.*—1. In most States there is probably no legal distance. However, there may be a municipal ordinance regulating the distance from the highway. 2. Generally not closer than 2 feet. 3. Toward the east or south. 4. No. Better make a space between the walls, and pack with sawdust.

J. B. C., of La., wishes to know whether it is possible to breed a queen whose workers shall be extra honey-gatherers, by tinkering or doctoring with the larvæ of said queen before she hatches. *Ans.*—Certainly not. This thing has been brought up several times before, and certain old-fogy bee-keepers have wisely said they had the secret of manipulation, which they said they would sell for a certain sum. Man can not step in and interfere in this fashion with the processes of nature. The only way to get extra honey-gatherers is to breed by selection—that is, by breeding from queens whose progeny excel others in the yard; and by this process, in time, a race of workers more energetic than the average might be secured. For some reason or other, but little attention has been paid to bees for business. The whole rage nowadays seems to be for *color*—five bands, etc. This is all right in its place, but we hope as much—nay, *more*—attention will be paid to bees for energy and longevity—in general, bees for business, because it is from these that come the dollars and cents. Extra color alone will not add another cent to the pocketbook, except—that of the queen-breeder, who breeds them just because his customers demand them.

J. M., of O., inquires what we recommend for covering sections while the bees are working in them, and what sort of cover we use over the brood-frames when the sections are off. *Ans.*—With the Dovetail hive, we use no other cover than the hive-cover itself. This will leave scant ¼ bee-space above the sections. But a great many—and we believe it is a decided disadvantage—put on the sections old carpets, old cloths, etc. So far as the amount of honey is concerned, these old cloths do not make any particular difference either way; but far cleaner sections, and hence comb honey that will bring a higher market price than that which is secured without the use of any carpet or cloths will be secured, because many bee-men do not scrape their sections. Wherever the cloth comes against the sections, the bees will daub a line of propolis; and if they can push the cloths up they will chink in propolis in the crevices, providing it is less than a bee-space. Practically the same reasons apply for not using enamel cloths or any thing of the sort over the brood-frames. The thick top-bars have practically no burr-combs. If hives are properly constructed with bee-spaces, then cloths, old carpet, enamel cloths, etc., are worse than useless.

Heads of Grain from Different Fields

CAN SUPERS BE PUT ON TOO SOON?

I notice in my perusal of GLEANINGS there is more or less said about the proper time to put supers on the hives. Will you kindly inform me how they could be put on too soon? That is, what harm would result from doing so? Probably this would interest others as well as myself. E. BRUBAKER.

Philadelphia, Pa., Mar. 21.

[The only objection to putting supers on too soon is, that the bees will unnecessarily soil the sections by traveling over them, and perhaps gnawing holes in the foundation. But if the bee-keeper is in doubt, we presume it would do no harm to put sections on a week or ten days too soon, and, on the other hand, it might entail considerable loss to put them on too late—loss of the colony by swarming for want of room, and loss of the honey that would have been gathered and stored in the sections.—ED.]

THE CHEMICAL QUALITIES OF GLUCOSE AND GRAPE SUGAR.

I am glad to see you take such a decided stand on adulteration. Glucose is not grape sugar, though it has the same chemical equivalents—carbon 12, hydrogen 12, oxygen 12. Chemists determine this by analysis; but no chemist can determine the arrangement of these equivalents or atoms, nor can he tell the effect the arrangement has on the article made up of these atoms; for instance, in true fruit sugar the placing of the atoms is, hydrogen first, then oxygen, then carbon; but in glucose it is carbon first, then oxygen, then hydrogen. Now, the number of equivalents may be just the same, 12 each; but the reversing of the order may make a world of difference. As there are limits to human thought beyond which the keenest minds can not go, so in chemistry there are limits. No chemist has yet discovered the size and position of atoms, nor the influence the position or change of position of the atoms makes in bodies—how sulphuric acid effects this change of place, and converts starch into sugar or glucose; and the very fact that the sweetening properties of glucose are not equal, weight for weight, to true grape sugar, ought to settle in the mind of any man of common sense, for ever, the fact that glucose is not grape sugar, though the chemical equivalents are the same. I don't profess to be an expert in chemistry, but I have paid a good deal of attention to it. REV. J. JANEWAY.

Pawling, Pa., May 8.

THE CONDITION OF BEE-KEEPING IN GERMANY.

In Germany great complaint is made over the depression of bee culture, and for this the new tariff law is held responsible. America and Switzerland send into Germany annually some one million dollars' worth of honey; and this is sold at so low a price that, together with the low protective duty, it renders it out of the question for the German bee-keepers to hold their own. So also the price of wax has suffered the important decrease of about 50 per cent in price—that is, from 48 to 60 cents it has fallen to 26 and 30 cents, reckoning a German mark at 24 cents. From this we see there is no longer any motive for keeping bees in Germany; and, worst of all, is the adulteration of honey, against which the law seems to provide no adequate defense. Besides, to add to the trouble of those who live in the Lünenburg heath, and who can not get even the poorest kind of extracted honey, large quantities of so-called "Lünenburg Extracted Honey" are thrown on the market.

Medina, O. KARL R. MATHEY.

STINGLESS BEES IN YUCATAN.

The other day, when reading the description of a tour a German traveler made through Yucatan I came across a passage which was somewhat surprising to me, and will, no doubt, be news to many of your readers too. The writer says that, a few leagues from Merida, at the hacienda Zacalun, the property of Don F. Leon, he noticed quite a strange kind of bees he had never seen before, and did not see afterward within the tropics. "They are larger," he continues, "than the German bee, of a brownish-yellow color, and stingless. There were, under a shelter, over 400 hives in logs, sawed the same length, hollowed out and laid one above the other in terrace shape. At both ends they are closed with wooden plugs. To get the honey, one looks to see at which end the honey is, which is stored in wax pockets of the size of a regular apple; then, after the hive is hung in a slanting position, holes are opened in the pockets, and the honey, which is just as good as ours, is allowed to run out. The brood-cells at the other end are six-cornered, like those of our bees." That is what I read, and I mention it with this caution: I neither believe nor disbelieve it; but, judging from what else the writer has to report and describe, he gives one the impression of being a perfectly honest man, who himself fully believes what he relates.

CHARLES NORMAN.

St. Petersburg, Fla., May, 1894.

[The stingless bees of Mexico and certain parts of our own country are a small bee, about half the size of the ordinary German. We do not remember to have seen any statement of any such bees being larger. We, however, accept the statement with caution, and in the meantime ask our subscribers to furnish us any facts that will corroborate or disprove it.—ED.]

WOOD SEPARATORS NAILED ON WIDE FRAMES A SUCCESS.

Allow me to disagree with Dr. Miller in regard to wood separators, on page 378. I have just finished filling 2800 section holders with sections, and they all have wood separators *nailed on*. I would not have them any other way. Dr. Miller does not say what the thickness of his is; but mine are sawed ⅛, and are the full width of the holder. Some of them have been in use two years, and show no signs of moving in any way. I would have them nailed on because it gives me 2800 less pieces to handle; by their use the sections do not fall out sidewise when putting in foundation by the melted-wax plan, and four sections can be handled at once. Now, why is it that so often the same article gives different results with different men, and can not be used in the same way? I know Dr. Miller's separators warped and curled when nailed on, because he says so; and I know mine do not, as any one can see by stepping into my bee-house.

A word for the holders. I would not tolerate a wide frame with a top-bar—the holders are so much easier emptied. With Carniolans, propolis is no objection to their use, as none of my honey was scraped at all, and I got 17 cts. for it too. H. P. LANGDON.

East Constable, N. Y., May 4.

[The separators that Dr. Miller spoke of as not being satisfactory when nailed on wide frames were of the *sliced* sort. He probably had not tried those that were sawed. These latter are better in every way, and almost as cheap. We have no doubt that, when ⅛ inch thick, they would work all right, even when nailed as you say.—ED.]

SWEET CLOVER AS A TROUBLESOME WEED.

Mr. Root:—I notice in Dr. Miller's Straws that he is lamenting a failure of his sweet-clover seed growing. Now, it seems to me he ought to feel good over it. It may be he knows all about sweet clover and what a nuisance it is. We would just as soon think of sowing mustard or thistles as sweet clover here in Wood Co. It may not spread with him, however. Every road here has its accompanying ditch, and they are lined with the nuisance. It is of no benefit to anybody, except for honey, and it grows 6 to 8 ft. high, and half an inch in diameter. It goes to seed, and remains standing all winter, looking very unsightly, like a dense growth of underbrush. It will occupy any uncultivated land, and is a nuisance in general.

If you wish I will describe my winter cases made at a cost of 10 cents each besides a little work. M. C. Dimick.

Bowling Green, O., May 7.

[Yes, we should like to have the description. —Ed.]

SWEET CLOVER ON NEW GROUND.

Will sweet clover grow in new ground that has not been broken? I have been thinking that I would try some. G. W. Grimes.

Porters, Del., May 14.

[I presume likely sweet clover would grow on any kind of ground when started. I notice this spring it is coming up with great luxuriance all along the banks and cuts in the hard clay soil of our new railroad. Where no other plant has thought of growing for the past four years, this is pushing ahead right in the hard ground with wonderful luxuriance, and it is getting to be so thick that the railroad men have to mow it off and dig it out to keep it from catching fire during a dry time and burning the ties. By the way, I suppose it is well known that bee-keepers are accused almost everywhere of sowing the seed of sweet clover on railroad ground, as on other places. I have never heard of a bee-keeper doing it in our vicinity; but I think the truth is, it seems to take specially to new ground —particularly that which is brought up from a considerable depth. I do not believe there is any need of manuring at all, nor any kind of fertilizing, for sweet clover. Alfalfa and other plants that grow down so deep would probably come under the same rule. This new pea, *Lathyrus sylvestris*, seems to be ahead in this line of forage-plants, from the fact that the tops remain uninjured during our severest winters. Sweet clover always dies down to the ground. I do not believe I would think of putting sweet clover on any ground that is good for other crops—at least, not as a rule.—Ed.]

THE VALUE OF HONEY FOR CHILDREN.

[Dr. Böhm, a physician of Schweinfurth, Germany, who has made a special study of the diseases of children, writes in substance as follows in regard to the value of pure honey for children. The matter was furnished us by our Mr. Mathey.—Ed.]

Children which grow fast, and, in consequence, look pale and weak, have special need of sweets. The trouble arises from a lack of proper nutritive elements in the blood whereby to replenish the waste of the body. Here the use of saccharine matter becomes necessary, as it supplies fuel, so to speak, to the animal frame. Nature now calls for a pure sweet—one containing a large per cent of grape-sugar, but one which is almost entirely lacking in nitrogen—that is, honey. Hence children should have honey freely, and as often as possible. Especially is the use of milk sweetened with honey, and eaten with good home-made bread, to be recommended. That is the most healthful, savory, and digestible breakfast; and especially in winter can nothing be found more conducive to the health of children than such food. While milk and good bread nourish children very well, the honey warms the body and strengthens the organs of respiration. The idea that honey is indigestible, and "remains in the stomach," as many believe, is a mere prejudice. Honey is indigestible only when taken in large quantities not combined with nitrogenous food. But good home-made bread, spread with honey, is more nutritious for children than whole boxes of biscuits, extracts, and other artificial products.

K. R. M.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year.

Receive my instruction, and not silver; and knowledge rather than choice gold.—Prov. 8: 10.

We are entirely caught up on orders, and have now discontinued our night force. The past week or ten days of cool wet weather cut down the number and size of the orders.

A series of lessons in practical apiculture, for beginners, prepared by Mrs. Jennie Atchley, is now running in the *American Bee Journal*. So far as we have glanced over them, they are interesting and practical.

R. L. Taylor has reported, in the last *Review*, a set of interesting experiments on 24 colonies, half of which were fed sugar syrup, and half honey. The result shows that "the average consumption of sugar stores was but 3⅛ lbs., while that of honey was 6⅞ lbs., or more than twice as much." Then Mr. Taylor goes on to say, "This has added importance when we remember what has been well established, that granulated-sugar syrup is fully equal to the best of honey as winter food for bees, and far safer for that purpose than any inferior honey."

The *Review*—or, rather, its editor—says he finds the Carniolans are great breeders—especially so in the spring; yet they "will rear brood, and swarm, so long as there is a drop of honey in the hive," and "it makes no difference if honey is coming in." That is quite in line with our experience. They will build up faster, and then swarm. It would be desirable, as Mr. Hutchinson says, to combine these traits with the "sense and thrift of the Italians," for these latter seem to be more provident, and more watchful for the future, than any other known race. Possibly a cross would be desirable; but how are we to distinguish them from ordinary hybrids?

A CORRESPONDENT, referring to the tall evergreens around our apiary and that of Mr. Boardman, asks what kind of evergreens they are. Around our own apiary they are only the ordinary Norway spruce. They are the hardiest and most vigorous growing of any of that kind of trees in our locality, and perhaps for most localities in the North.

THE very thing that we were afraid would some time happen did happen in our last issue. A type pulled up and planted itself lengthwise over the face of the half-tone engraving on page 455, and went through the press. The result was an oblong white spot on the face of the picture. We mention it here so our readers may know that it was not an original blemish in the engraving.

W. Z. HUTCHINSON takes the ground, and very correctly, that bees ought not to be sent by the pound, without brood; that bees and brood are like man and wife—they ought not to be separated. We have long since abandoned the selling of bees by the pound, for the very reason we had so many losses during shipment; and now when we send them on brood they invariably go through in good order.

"OBSERVER," in *Progressive*, hints that the "whole Heddon business was a put-up job." We wonder whether Observer would say this under his real name. Attacks from a writer under a *nom de plume* are like stones thrown by a man from behind a tree. Well, referring to the "put-up job," all we have to say is, that if Observer, or *any one else*, will call at our office we can furnish him *plenty* of proof that it was not. We might say a great many more things than we have said; but we forbear saying more.

PROSPECTS.

WE have been receiving reports saying that bees were starving; others that honey is just coming in. In all probability this warm spell of weather had not begun to take effect in localities of those first mentioned, and we are in hopes that even they are beginning to find now that honey is not only beginning to come, but coming with a rush. No doubt the cause of the bees starving was due largely if not altogether to the spell of cold weather that prevailed throughout the North, at least, a week or ten days ago. In our own locality we were threatened almost every night with frost and we did have it in two or three instances. During the day it was so cold and rainy that the bees were not even able to fly, and hence it is that reports began to come in showing that bees were starving. Our bees have been working on clover for three or four days, and the appearance of the basswood-blossoms, not yet opened, gives a good promise of honey from them.

STATISTICS.

WE have just received the following statistical report from the Secretary of the Illinois State Bee-keepers' Association. We have as yet prepared no statistics, but the following will answer for the present. "a" refers to the number of colonies; "b" to the prospects of a crop; "c" to the amount of surplus, and "d" to the grade or quality.

A. B. Anthony, Coleta, Ill. a. 26; b. very good; c. none now.

F. X. Arnold, Deer Plain, Ill. a. 86; b. very good for spring crop; c. none—bees in a starving condition.

T. B. Allen, Stirrup Grove, Ill. a. 32; b. very poor—no white clover; c. none.

J. Bertram, Bristol, Ill. a. 12, hives crowded; b. poor; white clover injured by drouth; c. none.

M. Bevier, Bradford, Ill. a. 42; b. good; c. none.

S. N. Black, Clayton, Ill. a. 30; b. poor—no white clover; c. no surplus.

F. Blecka, Elgin, Ill. a. 18; b. good—hope; c. bees working in sections; d. No. 1.

P. Blunier, Roanoke, Ill. a. 51 in good condition; b. not good—white clover thin; c. no surplus, but some in brood-nest; d. good.

D. A. Cadwallader, Prairie du Rocher, Ill. a. 22; b. good at date—white clover abundant; c. none yet—bees swarming.

Dadant & Son, Hamilton, Ill. a. 350; b. poor; c. none.

P. Dahl, Granville, Ill. a. 128; b. fair; c. no surplus; d. some honey dew.

D. E. Robbins, Payson, Ill. a. 30; b. very poor—no white clover; c. enough to keep brood-rearing brisk; d. honey-dew almost entirely.

P. J. England, Fancy Prairie, Ill. a. 26; b. good; c. none yet.

J. D. Everett, Oak Park, Ill. a. 14; b. very good; c. can't tell.

J. W. Finch, Jr., Springfield, Ill. a. 13; b. very poor—no white clover; c. not any.

E. T. Flanagan, Belleville, Ill. a. 275; b. only fair; c. none.

J. A. Green, Ottawa, Ill. a. 118; b. fair—bees in first-rate condition; c. no surplus; d. some honey-dew.

N. S. Hahn, Henderson, Ill. b. favorable if dry weather keeps off; c. have examined far enough to know that pollen is plentiful; d. don't know.

J. M. Hambaugh, Spring, Ill. a. 120; b. very poor; c. no surplus; d. don't know.

Rev. W. Hayck, Quincy, Ill. a. 74; not good—may be half a crop of white clover; b. no surplus—bees need it all; c. No. 2.

L. Hybarger, Leaf River, Ill. a. 70; b. fair—white clover cut short by last fall's drouth; c. enough to keep brood going.

Wm. Little, Marissa, Ill. a. 60; b. not good—cold, and bees starving; c. none—clover badly injured by late frost.

J. H. Martin, Bloomington, Cal. a. 170; b. prospects are that there will be but little honey to ship from this part of the State; c. bees have hardly made a living—are being fed in some localities; d. not much to grade.

Dr. C. C. Miller, Marengo, Ill. a. 201; b. excellent; c. what are you talking about?

A. Phelps, Springfield, Ill. a. 30; b. fair; c. can't say; d. No.1.

Jas. Poindexter, Bloomington, Ill. a. 150—majority weak; b. not good—clover badly killed; c. no surplus—an average for brood-rearing; d. not good I think, for time of year, and for source from which it was gathered.

G. F. Robbins, Mechanicsburg, Ill. a. 78; b. very poor—clover all killed out last year; c. one thimbleful from fruit-bloom.

A. I. Root, Medina, O. a. 150; b. good; c. probably 10 lbs. per colony; d. good quality.

J. Q. Smith, Lincoln, Ill. a. 62; b. not any so far—no clover in sight; c. none.

F. A. Snell, Milledgeville, Ill. a. 110; b. fair; c. a liberal quantity for brood-rearing; d. none stored to date.

P. E. Vandenburg, Jerseyville, Ill. a. 40; b. very poor—have nearly stopped breeding; c. haven't a sealed cell.

W. M. VanMeter, Era, Tex. a. 4; b. good; c. 50; d. excellent.

E. Whittlesey, Pecatonica, Ill. a. 65; b. fair—white clover injured by drouth; c. none.

JAS. A. STONE, Sec.

At the close of the honey-harvest we will prepare such statistics for the whole United States, the same as we have done in former times.

GALVANIZED UTENSILS FOR HONEY, AGAIN; A STATEMENT FROM PROF. SPENCER.

ON page 404 it will be noted that Mr. Elias Fox stated he had been in the habit of having his honey stored in a galvanized vessel, and that he had never detected any injury to the honey. At the time, he sent us a sample of honey that had been melted in this galvanized pan three times; and in our footnote following we stated that we had forwarded this sample to the Chief Chemist, at Washington. The nature of our letter to the chemist will be plain from the reply following, which we take pleasure in submitting to our readers:

Mr. A. I. Root:—Your letter bearing date May 25, and accompanying sample of honey, have been received. No zinc could be detected in the honey sent. The sample was, however, too small to permit the detection of the presence of much less than 50 parts per million, which would be a comparatively large quantity of the metal to be in a food.

As to whether honey would attack galvanized iron used for storage-tanks, etc., that is a matter which would have to be settled by direct experiment. Foods differ widely in their power of attacking zinc; and while I am of the opinion that honey would not exercise much action on that metal, my opinion is subject to revision. It would depend on the fluidity and acidity of the honey to some extent, and also on the access of air. Should a galvanized tank full of highly fluid, acid honey be emptied, and allowed to stand some time before refilling, the conditions would be favorable to the contamination of the second lot of honey, if this food does exercise a solvent action on zinc, as the metal surfaces would be covered with thin layers of honey freely exposed to the air. I should not imagine such action would take place in the case of honey stored in closed cans.

Galvanized iron is frequently used for water service and always gives up some zinc to the water, the amount depending on the length of contact and on the amount of dissolved air. Generally it is very small.

Nothing definite is known as to the physiological effect of small doses of zinc frequently repeated. The metal may tend to accumulate in the system as lead does, though there is not much evidence to this effect. It is certainly not a desirable thing to have in food. G. L. Spencer,

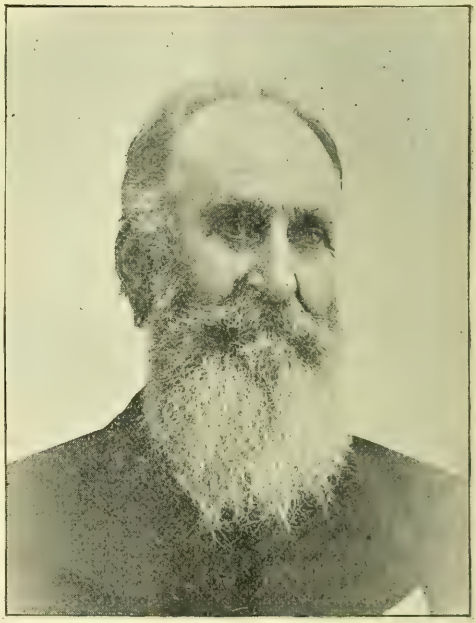
Acting Chief of the Division of Chemistry.

Washington, D. C., June 1.

As the sample was too small to make a satisfactory test, we desire our correspondent, Mr. Fox, or any one else who has honey stored in a galvanized-iron tank for any length of time, say two or three years, to express us, at our expense, a sample of two or three pounds of the liquid honey taken from such cans. We wish to have this matter determined definitely, as it is a very important one to be decided. At present we do not think that galvanized-iron tanks, from the fact that many are using such for storage-tanks, have any injurious effects upon the honey; and you will notice that Prof. Spencer is of the same opinion. The fact is, tin will rust; iron will do the same; copper too expensive; and wood will shrink in California and other hot climates. Galvanized iron is the only material for tanks that can be used for the storage of large quantities of honey.

A. A. RICE.

For many years we have been buying bees of our old friend whom we have called "Neighbor Rice," who lived some ten or eleven miles from the Home of the Honey-bees. Mr. Rice took a start in bees about the time that Gleanings was started; and ever since that time he has been a thorough and successful bee-keeper. He loved his bees, it was a pleasure for him to work with them, and no wonder he was so successful. He was successful, not only in making them bring in *cash*, but in always wintering them, even when the rest of us lost heavily; and the consequence was, through our heavy sales of bees, nuclei, and queens, to supply those who had lost, we were obliged to draw upon our neighbor for new supplies. He always enjoyed the distinction of furnishing us the nicest bees on the nicest combs, and at the highest price. A number of times, other local bee-keepers have asked why we paid Neighbor Rice more than any one else. Simply for the reason that he took pains with his bees, and was able to furnish us good strong colonies in spring, when others would bring in poorly marked hybrids, weak at that, to say nothing of their being on crooked and unsightly combs.



A. A. RICE.

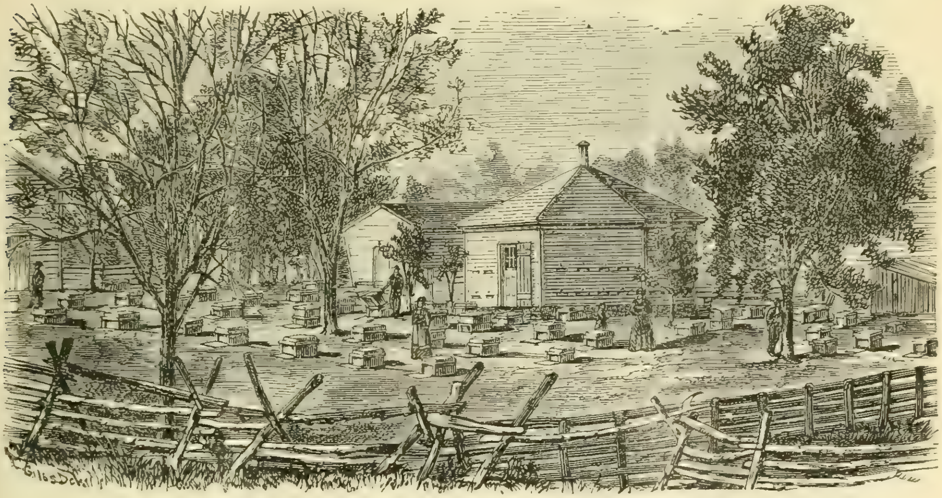
Well, we have just bought out his entire apiary, and for the last time we shall ever buy of him again—not because the bees are unsatisfactory, but because our friend has passed from this world. He died at his home, west of Seville, O., Dec. 6, 1893, at the good old age of 73 years. From an obituary notice in a local paper we extract the following:

> He was one of nature's noblemen in a double sense—over six feet tall, heavily built; and in 60 years of acquaintance with him I never saw him angry nor heard him utter a profane word, nor drink any spirituous liquors, nor use tobacco in any form. He had three brothers. One died young; two lived to manhood; one was in the war of the Rebellion, and was shot in the leg. His father was in the war of 1812, in the Vermont militia, and received a pension; and his grandfather was an officer in the Revolution, and stationed at New York city. Mr.

Rice leaves a wife; his only daughter, Mrs. Roxey Wilson, of Edmore, Mich.; and one sister, Mrs. A. V. Eastman, and a host of friends, to mourn his loss.

Years ago, away back in November GLEANINGS for 1876, appeared an engraving showing Mr. Rice's apiary and the house-apiary; and together with it was a short paragraph, both of which we have decided to place before our readers at this time.

> It was a pleasant day in October when we—the artist (Mr. Stanhope) and myself—drove up just by the rail fence you see in the foreground, and took a peep at the surroundings as you see them above. Friend Rice was found busily engaged making winter passages for the bees, which operation he performed with a "sharp stick," and we noted that he got along with it very fast. We soon went into the house-apiary, and, after we had noted the tempting displays of comb honey, we were real glad we came to see him. In the center of the room we found large tin tanks of both linn and clover honey; and as we never like to waste any time we dipped out the honey, first from one can and then the other, while we talked "bees." You must know that friend R. gets all his comb honey in small sections fitted into his large frames, and the sight of these cakes of honey right before the glass division-boards clear round the room is pretty, we assure you. May Mrs. R. never lose her genial smile, nor he the robust strength that enables him to carry those heavy hives out of the cellar and back, whenever a summery day occurs in midwinter; and when he gets old, may he have an easy-chair in the house-apiary, and find it (the house-apiary) a complete success.



A. A. RICE'S HOUSE-APIARY, SEVILLE, OHIO.

Mrs. Rice has still the same genial smile; but it is a sadder one, through the loss of her life companion. His robust strength did not give way till the silken cord, without any warning, was snapped while he was apparently in his usual health.

The house-apiary seen in the background was long since discarded, although we believe he continued to use it as a sort of shop. The hives shown in the foreground he was using up to the time of his death, and were still in excellent condition, as was every thing that Mr. Rice had about his bees. He was not a man who believed in letting hives rest on the ground, to rot out the bottoms, nor letting them go unpainted.

Perhaps many of our readers would like to know the secret of Mr. Rice's success in wintering. He always put his bees in the cellar, in the hives you see in the engraving, and always put over the frames a cushion, and over all a cap with a wire-cloth screen on top, for the purpose, as he said, of "letting the bees' sweat pass off." He did not think it necessary to have a large entrance, but, on the contrary, regarded it as very important that the "sweat" should have perfect freedom to escape through the thin cushion. The wire cloth was used, not only to hold the bees in the hives during the winter, but also during such times as when he brought the bees up in his bee-wagon to Medina, to sell them at the Home of the Honey-bees.

Mr. Rice was one of those bee-keepers whose light did not shine very prominently through the bee-journals, but he was one of those quiet, practical ones who make bees pay. He accepted new theories with caution; and when he found he could winter his bees successfully, nothing in the world could induce him to change his plan one iota. A year ago last spring, after we had given the sealed covers a thorough test, with such unsatisfactory results, he said, with a smile, "I thought you would find out your mistake. The sweat has got to pass off, and it can not do it through the sealed cover."

HIGH PRESSURE GARDENING

HOW TO SUPPORT A FAMILY ON ONE-FOURTH ACRE; A GLIMPSE OF ONE CORNER OF THAT QUARTER-ACRE AS IT APPEARED MAY 16.

May be you will think, from the picture adjoining, that it is a pretty good-sized "family." Well, I am glad it is; and I am glad, too, that the prospects are just now that they are going to be supported quite comfortably. Perhaps I might remark that the greater part of them are the boys of my Sunday-school class. They are at work on the last end of a bed of Prizetaker onion-plants, putting up an order that came all the way from Minnesota, for 100,000 plants. The price received was $75.00, and, as nearly as I can make out, the 100,000 occupied just about the space of one of those 50-foot beds—beds 50 feet long and 6 feet wide. And this is for a single crop, mind you. The seed was sown March 14. Of course, there was considerable labor in handling the sashes, and there was the expense of, say, two or three pounds of Prizetaker onion seed at $2.25 per lb., and the cost of taking the plants up. The 10 boys you see in the picture would put up the whole of them in about 10 hours. This would be at the rate of 1000 plants an hour for each boy, or 10 bunches of 100 plants each; 6 minutes for counting out 100 plants, putting a slip of oiled paper around the bunch, and a rubber band over the paper. The boy with a straw hat on, near the center of the group, has a bunch of 100 in his hands. You can see the white roots—that is, if the artist gets his half-tone picture clear enough in detail. I should not forget to mention that, before we had so much rain, keeping the plants well watered was quite a little item of expense. The water is furnished by the windmill and tank on the hill; and before going further I want to say that Ernest succeeded in getting about the brightest and sharpest—especially sharpest in detail—photograph of garden-plants that I have ever seen. As I look at the picture my field of rye stands out so sharp and clear that almost every head is visible. Last year I had 40 bushels per acre on that same ground. You may ask what kind of farming I am at, in having rye on the same ground again. Well, there is a crop of clover down under the rye, that you do not see; and the reason why we have rye again is that, in spite of all I could do, enough grain was scattered through the clover to make the stand you see in the picture. I wanted the clover to grow another season, so I just let the rye and clover grow together. In a few days the rye will come off and the clover will hold sway. The vacant spot on the right-hand side is where the former owner started to make an alley through the lot by letting the townspeople draw away the dirt. When I got possession I stopped the alley business. But they took off the top soil to such an extent that I have not got the clover to catch in the hard clay as yet. The beautiful thrifty foliage just below the rye is our Palmer raspberries. They are now bending with their loads of bloom, and the hum of the golden Italians among the blossoms is indeed inspiring. This side of the raspberries are four rows of strawberries; and next to the strawberries are my dozen rows of rhubarb that I told you about, mulched with stable manure. Then comes a row of grapevines; then tomatoes and cucumbers, and finally we come to the plant-beds. If you look sharp you will see a load of stable manure adjoining the roadway. During the heavy rains the juice from this heap of stable manure has made the ground dark and rich along the ditch at the end of the plant-beds. The first bed contains cabbage-plants on the right hand, and smaller cabbage-plants, just put out, on the left-hand end. In the picture you get a glimpse of three or four large boxes in different positions. These are slipped over our piles of sash when the sash are piled up at the end of the beds. They protect the sash from the weather, make them secure in case of hail during the summer time; also secure from small boys who might be throwing stones at such times. The box turned on its side back of the boys is set up in that way to shade the plants while they are being packed. Ernest says it was a big mistake in not having it down flat when the picture was taken, as it shades the boys' faces too much. The next bed contains four different kinds of tomato-plants. These different varieties are separated by strips of wood. They are ready to send off. Then comes another bed of cabbage-plants, and then one of White Victoria onions large enough to pull for bunch onions. In fact, some of them are now larger than hens' eggs.

I have not figured up how much money we get from a bed of bunch onions; but at 5 cts. for a bunch containing 1 lb. of onions, tops and all, it foots up pretty well, especially if you keep pulling out the largest and then waiting a little for the others to grow. In doing this you can plant them quite thickly, say rows 4 inches apart and onions 2 inches apart in the row.

We now come to the bed where the boys are at work. Of course, with such a crowd there needs to be a boss; and the young boss you will see at the left-hand side. Frank has been with me so long that he has almost grown into the business. He is so industrious that it is hard work for me to explain to him that, when he is looking after *nine boys*, he should not undertake to do any other work himself. For instance, the boss should be sure the plants are kept soaked with water, with the rubber hose and sprinkler; then he should see that the boys put up their bundles neatly, without smashing or wasting the onions; that they should not get crowded together, trampling their tools, etc., under foot. Then he must provide slips of oiled paper, rubber bands, moss for packing, and baskets. I tell you, it would keep *me* busy to have nine such boys work to the best advantage, and save unnecessary motions. The bed in the foreground contains small cabbage-plants at the left end. Next is a cluster of beet-plants that are getting too large for their territory; then some more cabbage-plants, and finally a dozen or more beautiful Dwarf Champion tomato-plants, in bloom; and just beyond the tomato-plants you get a glimpse of a single hill of potatoes grown in our rich plant-garden soil. I think very likely all this mass of foliage came from a single volunteer potato. When a frost threatened night before last, it took one of those big boxes to cover that single hill of potatoes. Just think of it—a hill of potatoes so large in the middle of May that it takes a box 6½x3½x2 feet high to cover it! On the extreme right of the picture you catch a glimpse of our tile-yard, close by the railroad track; also a corner of the coal office. Yes, and there is that mud-puddle, full of water, that I have been piling cobblestones into for two or three years. The traffic of the heavy loads of tile and coal keeps cutting into the mud.* Last, but not

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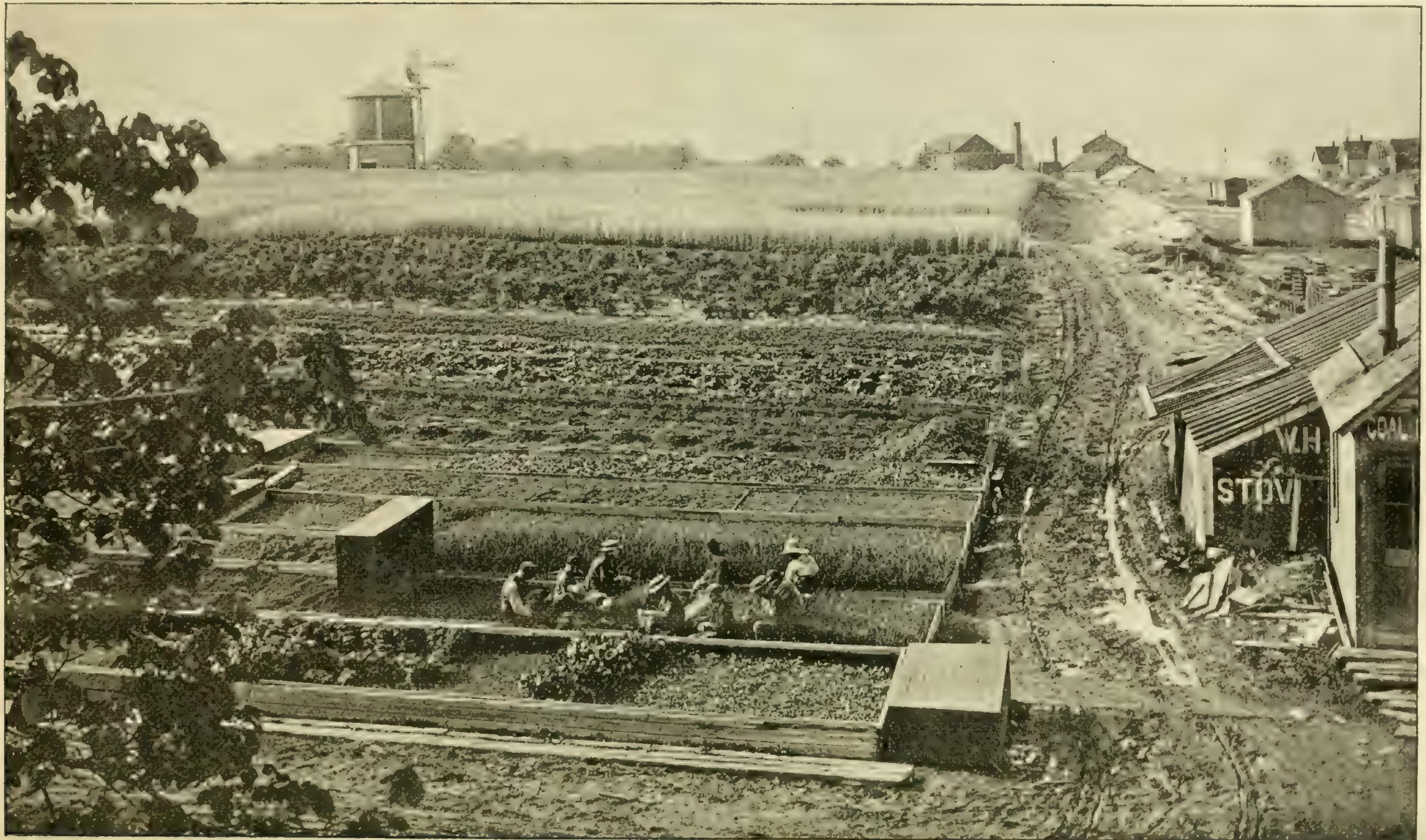
*The very spot where those boys are now at work, and the ground that is now covered with such valuable crops and luxuriant vegetation, was for years an unsightly mud-hole, occupied with all sorts of old rubbish, weeds, tin boilers, old boots and shoes,



W.H
COAL
STOV

least, at the extreme left of the picture you get a glimpse of one of the 100 basswood-trees I planted along the street some ten years ago. Ernest took the picture from one of the upper windows of our type-room, and these basswood branches came out a little in the way.

A word more in regard to supporting that family on a quarter of an acre. You will notice by the tomato-book (p. 100) that the quarter-acre contains just 24 fifty-foot beds. Now, if each one of these beds could be so managed as to give a crop worth $75.00, say *once* a year, the receipts of our little farm would be $1800. But I expect to make the same bed that gave that 100,000 onion-plants give us nearly half a dozen crops in the course of the year. We won't figure up *six times* $1800 just now, however. Alas for the imperfections of the best-managed of human schemes! The whole fourth-acre may possibly give $1800 in a year—yes, may be twice that; but I presume I pay out for labor, seeds, and manure—to tell the truth, I do not know how much—probably somewhere between $500 and $1000. With the many other busy cares devolving upon me besides that plant-garden, it is impossible for me to give you accurate figures. I can give you only glimpses of the possibilities in this line of work; and every city of 1000 inhabitants or more should, in my opinion, have at least one such plant-garden.

Now, before I close let me consider a little the text I have put at the head of our editorial page. It does not refer to onion-plants—at least, not particularly; but, O dear friends, it does refer to that group of boys who are looking to me, not only for directions in regard to their work, and for their pay every Saturday night, but when Sunday comes they are looking to me and *depending* upon me for something of more importance. May God help me to be faithful to this precious charge. The boys attend school, of course, five days in a week; but they are on hand almost every morning between five and six. Some of them would come before five if I permitted it, and they work till the schoolbell rings. When school closes in the afternoon their arrival is heralded by pattering footsteps and boyish voices. They are so glad to get outdoors after being kept in the schoolroom that their wayward feet are likely to go into the mud, and may be on the plants; but for the most part they work with such a hearty good will that I should be ashamed of myself if I could not overlook their boyish blunders and mistakes. I do not know whether they know it or not; but I love them—every one of them—and it really gives me pain when other boys come and beg to be taken into this class, to be obliged to keep refusing them, day after day. What pay do they get? Well, the youngest ones get 4 cts. an hour; the most of them 5, and a few of them 6. Frank, the one who bosses, commenced just as they did, but he has now got up to 11 cts. an hour. When I decided I could afford to pay him 11 cts. I do not believe he felt any happier about it than I did.

There, friends, I have found a good deal of fault in some of my past writings with these boys God has given me for helpers; but I feel rather happy, at the close of *this* talk, to think that I have not found any fault at all with anybody. By the way, I must add that this sort of drill that these boys are getting is, without any mistake or question, fitting them to be useful and valuable members of society; and, oh it is so much better to have them busy, and in love with this kind of work, than to be roaming about the streets and learning mischief. May God help us all in the care of the boys of this our native land!

"THE NEW CAULIFLOWER CULTURE."

Well, why not? We have had the "New Onion Culture" and "New Celery Culture;" and my experience would indicate that there is more money in the New Cauliflower Culture—that is, for intensive gardening—than in either of the others. Get good strong plants in February or March, and set them in plant-beds made very rich. In fact, I think our plant-bed was at least one-fourth rich old stable manure, and it was spaded down perhaps a foot and a half deep. Now set your plants in these beds, a foot apart. The spacing-frame described on p. 42 does this nicely. After the plants get to be well rooted, no other covering is needed to protect from frost than cotton cloth. I did not fee quite sure the plants would make nice heads so close together; but they have made the very finest I ever saw. The large leaves filled the whole bed completely full, and the heads were down in among them so that they were perfectly blanched without any tying-up of the leave at all. In fact, they were regular Snowbal cauliflower. For the first and finest heads we got 25 cts. per lb.; but for the smaller ones, and those not quite so handsome, 15 cts., and finall we came down to 10. We marketed them al through May. I have tried Wakefield cabbag on the same plan, but it was not a perfect success. My impression is, however, that I did no give them a full foot of space between eac plant and its neighbor. I am going to test th matter again. The advantage of crowdin them so close together is, that it is but littl work to cover them, and no trouble at all t weed and cultivate.

PROTECTING FROM FROST—TWO SIDES TO TH MATTER.

And speaking of protecting plants remind me that, two or three times during the latte part of May, our Weather Bureau admonishe us that the conditions were favorable for frost At two or three different times we put on sashes, and carried potato-boxes and squash-boxe until I expended from three to five dollars i covering and uncovering. Now, the questio is, would a light frost have done that amount c damage? I think there is an extreme both way in the matter of covering stuff. Friend Gaul told me of making a smudge of wet straw, t shield his early potatoes. He got up at on o'clock at night, and saw by his thermomete that there was danger ahead. The straw ha been placed in piles the night before. He raise a smoke and fog sufficient to envelop his whol patch of potatoes, and kept up the smudge until he happened to look overhead and found h could not see any stars—that is, when he g outside of the smoke. Then he noticed a clou was doing the work for him, and he went bac to bed again. Our barometer told me, the nigh before, that rain was coming, so I did not cove up any thing this time, and nothing was harmed. Where plants lie in beds so a cloth shee can be quickly rolled down, the expense is, c course, nothing; but where you have to carr bushel boxes or sap-pails, and turn them ove tomato-plants or hills of cucumbers, it is considerable expense. Besides, if the ground happens to be damp, as it has been for the past tw weeks, there is a good deal of tramping that have begun to think is almost as bad as a ligh frost.

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etc.; and I confess that I have greatly enjoyed the work of making this unsightly spot bud and blossom; and you, dear reader, can take any bit of waste ground—that is, providing it gets the sunshine—and do as much. If it is close to the highway it will do its own advertising; and if it is close to a town or city, the space will be all the more valuable.

SOWING GOOD SEED, ETC.

Please find inclosed the price of GLEANINGS for one year. It was not for the want of funds that I did not remit earlier, but because of an internal commotion within my breast on account of that Evergreen sweet corn I ordered of you one year ago. The corn looked so nice and good I planted without testing, and you may judge of my surprise, after waiting anxiously for some time for it to make its appearance, to find that much less than half ever sprouted, and I had to replant with another variety, which made the crop late and very unsatisfactory. You may judge of my feelings when it came to mature, with such large beautiful ears, and such a heavy growth of blades and stalks. Well, I have wanted to say some awful big "swear words," but I had just signed the Juvenile Pledge not to swear or use any other bad language. I can hardly restrain myself, even at this late day, from using very expressive language. I have waited and watched GLEANINGS for a bad report or good report from some other lucky or unlucky individual, for I have been in a miserable state of mind all this time. I think I shall feel better after freeing my mind in this somewhat restrained manner; in fact, I begin to feel better already, after stating these facts, and forming a firm resolution to never again plant corn without testing the seed. H. S. TUCKER.

Freeport, Iowa, May 30.

[Many thanks, friend T., for your very frank and outspoken way of stating your grievance; and I am very glad indeed that you held on—at least, until you looked at the point in all its bearings before using the "expressive language" you allude to. I do know what a serious matter it is to lose a crop just because the seed was not strictly first-class; and I, like yourself, have resolved again and again not to offer any thing for sale until I had first thoroughly tested it myself. Every season I am importuned and urged to offer for sale this, that, and the other, that is recommended with the strongest testimonials; but I have always replied, "Not until I have grown the thing on my own grounds." This course makes me behind the rest of the world, a good many times, on valuable new varieties, say of strawberries and garden-seeds; but I would rather be behind the times, and be sure.

Now about that Evergreen corn. Please observe, we have never advertised nor recommended Evergreen sweet corn at all. My attention was called to it on account of the excellent quality of the canned corn grown and put up by the Lake-shore Canning Factory. So many wanted seed that would grow corn equal to that in those cans, that I wrote to friend Cummings about it. He told me he purchased the seed of C. F. Clark, Wakeman, Huron Co., Ohio. Accordingly I purchased four bushels of the very kind that friend Cummings plants year after year for his canning-factory. I offered it to the readers of GLEANINGS with the above explanation. There has been but one complaint besides your own, friend T.; and if you have written to me in reference to the matter before, this other complaint I allude to may have been from yourself. It is true, our own planting did not come up well; but neither did any of our sweet corn last season, planted at the same time. The excessive wetness just after planting time was, I supposed, the reason why the seed that was planted rotted in the ground. This may not be true, however. If friend Clark sent me exactly the same kind of seed he furnished to the canning-factory, and they had a good stand of corn, I should be inclined to think the failure due to some other cause.

At the close of your letter you strike upon a very important fact—not in corn-growing, however, but in something far more important. You say you have been in a "miserable state of mind." Who is there who has not been through this same experience? And you say, again, "In fact, I begin to feel better already." I presume many others have also been through this experience. In fact, I wish more of us had. This seems to be true: So long as you dwell on a wrong you have received from somebody, and brood over it, so long you are miserable. But when you go to the one who has wronged you, and in a kind, neighborly way, state the case, then you begin to feel better right away. I have a great many times put it this way: Before I am harsh or severe, I will put the matter very gently, and see how Mr. So and So takes it. If, after having put it very mildly, I discover that there are no extenuating circumstances, then, but not before, I will bring in the "heavy artillery" that I have had in mind. I suppose the very "expressive language" you say you felt like using would be the "heavy artillery" I had in mind. Well, I hardly need say that the "heavy artillery" is almost *never* required at all when we go about it in this way.

In conclusion, friend T., even though I do not grow the Evergreen corn, nor advertise it in our price list, if you feel certain that your loss was caused by poor seed, I will try to do what you think would be right and neighborly in the matter.] A. I. R.

NOTES OF TRAVEL

BY A. I. ROOT.

ON THE WHEEL.

"Hello, boys! there comes a locomotive right off through the lots, and into our berry-patch. Just look!"

"Well, now, that is A. I. Root on his wheel, I'll bet a dollar; for there ain't another man around who would undertake to run a wheel off through the lots in this style."

By this time I had caught up, and was shaking hands with the man who called me a locomotive, and then we had a good laugh as I shook hands again with our old friend Dan White, whom our older readers will recognize as no small authority on bee culture in years past. Mr. White is also in love with strawberries and other small fruits. In fact, when I was away back in the road I was speculating whether I had time that morning to go off to the back end of the farm to see Mr. W.; but when my eye caught sight of the beautiful green rows of wonderful luxuriance off on that gentle slope, I concluded I should have to go over there for a few minutes any way. The beautiful crop was strawberries—two rows of Crescent and then one of Jessie, and so on through the patch. Even though it was only the 29th of May, many of the Jessies showed their red cheeks through the green foliage. I did not wait to be introduced to the strawberries, nor even to be invited; but I commenced picking those great big fellows, and biting off the bright-red side first. I have thought before that I liked the Jessies better when they were red on only one side; and that morning I thought so again. Mr. White says he has never found a better fertilizer than the Jessie; and, judging from his stand of plants and show of berries, I should call the Jessie all that was ever claimed for it, on his premises. His soil is just perfection for raising strawberries. It is new land. In fact, these berries are the second crop since the woods was cleared off; and the woods dirt has been mixed thoroughly with the natural sandy loam; and through it all there is a sprinkling of gravel—just enough to produce the kind of soil that strawberries revel in. I do not know why he sticks to the Crescent when we have so many other new pistillate varieties; but I notice that a great many of the veterans are sticking to the old Wilson and the Crescent.

Mr. White has been putting in some underdrains recently; and he was full of enthusiasm, as well he might be. As we walked along he told me how he had been thinking for years that he could not *afford* tile drains; and in one place he drew in a hundred loads of soil to fill up a cat-swamp; but as *this* did not get rid of the wetness he finally put in tiles; and now he says he just fooled his time away when he carted in that dirt. His man (the one who called me a locomotive) was cultivating the berries with the new Planet Jr. twelve-tooth harrow; and when I began to object that he was running the outside tooth too deep, so close to those thrifty young strawberry-plants, he and his employer both insisted that it did no harm. Said friend W., "Mr. Root, you always plant your strawberries with a spade, do you not?"

I told him I had used the spade a few times, but our boys did a good deal better where the land was marked out so as to make a furrow of just the right depth so as to spread the roots and then pull the dirt around them. But Mr. White declared he could set plants ever so much faster by setting a spade in and then spreading the roots of the plant out fan-shaped; and, furthermore, by the latter plan they could cultivate within an inch of the plant and not tear any roots, even if they went down to a considerable depth. I was obliged to own up. By the way, is it not funny that each man has a plan or system of his own, and that each one manages so well by his own fashion of doing things? At the end of the row of newly set strawberries were some rows of blackberries. Now, the man who was cultivating, instead of going clear through the blackberries to the end of the lot, turned around when he had got to the end of the strawberry rows. I do not know that his horse stepped on the plants, for he did nice work with his cultivator; but yet he turned his horse around in the middle of the lot when there was more cultivating to be done, right ahead of the horse. Now, it may be that people have good reasons for their own methods of management; but when I looked out of the car-windows that morning and saw little patches of fruit and various kinds of garden-stuff right out in the middle of a lot, I could not help thinking that, notwithstanding the multitude of agricultural papers and agricultural teachers, the mass of our farmers have not yet seen the figures given so often in regard to the amount of time it takes to *turn a horse around* and go the other way. Why, if you have a quarter of an acre of strawberries in a square patch, it takes more time to turn your horse around than to do the cultivating; and why in the world do so many persist in having little square patches when they might have their berries and every thing else in long rows the whole length of the lot? In riding 40 miles that morning, I do not believe I saw crops of any kind put in in rows as long as the field would permit them to be made. In fact, I saw one man cultivating a patch of potatoes that was perhaps three times as *long* as *wide*, and he had short rows running *crosswise*, and was cultivating back and forth, and tramping up ever so much grass at each side where he had turned around. I confess it looks rather bad for me to criticise friend White's management and methods when he has a better showing of a good many things than I have. But I wish he would tell why he did not plant his raspberries, blackberries, and strawberries, in long rows instead of having so many square patches, and not any of them the whole length of his long fields. We had so much to talk about just then that I did not mention it.

I began to tell him I was going over to see friend Gault's new raspberry; but we had to look at this thing and then at that thing, and then questions were to be asked; and just as he went to hitch up his great stout young horse, that he and I might *visit* while we went over to friend Gault's, he told me there was one more thing I *must* see. It was a patch of American Wonder peas. I think they were the finest I ever saw—a perfectly even stand, and very few "rogues" among them, or tall peas sticking away up above the dwarf Wonders. He had such a good-sized patch that I said at once, "Look here, friend W., you paid out a big lot of money for that American Wonder *seed*, this year, when it is so high, did you not?"

"Why, no, I did not, Mr. Root. The high price did not affect me at all, for I *raised* the seed myself."

"And did not have any bugs among them?"

"I did not have a buggy pea in the whole lot."

"Well, what did you do to get rid of the bugs?"

"Well, I didn't do any thing; but I had some seed that was not buggy, and I planted it about the first of June, thinking that, if put in so late, I should probably escape the bugs, and I did. One reason why I wanted to raise my own seed was, that I wished to see if I could get rid of those occasional tall peas, by picking those out and using for the table, letting only the dwarf Wonders ripen for seed."

Now, friends, what is the use of sending away off to Canada for our seed peas, in order to get them free from bugs, and paying *$6.00 a bushel* (as we did this year) in order to get genuine American Wonders—that is, if we can grow them in our locality, free from bugs? I believe we can do it, and I for one am going to try it. Perhaps, if we get the hang of it, it is after the same fashion that Wilbur Fenn manages to avoid bugs and blight with potatoes.

I left my wheel at the depot somewhat reluctantly, and we started for friend Gault's. Neither friend W. nor I had figured on the amount of time we had spent in visiting until he asked what time I must be back to get my train home. I told him I must be back at half-past two. He pulled up his horse, saying:

"Why, my dear friend, it is 7 miles to Mr. Gault's, and 7 miles back again. My horse, with these rough roads, would only just about make it if we did not stop to visit at all, and you have not had your dinner."

We were in a fix, sure; but I told him I could make it on my wheel, and have time for dinner and quite a little visit besides. I did so in spite of the bad roads, and stayed an hour and a quarter at friend Gault's, getting around to the depot five minutes before 2:30. When I got there, sure enough there was friend White waiting for me, and as I wheeled up he said:

"Well, now, I felt so sure you could not make it, even with your wheel, and would miss the train, I came up with the horse and buggy to take you back to stay with me over night."

Well, he slipped up on his generous plans for my comfort and entertainment. But there is a moral right here. Don't you see, friends, that, by the aid of this new Aladdin's lamp in the shape of the modern bicycle, we are enabled to make a great many appointments, and to transact a large amount of business, besides getting lots of enjoyment that would be impossible without the wheel? In fact, the modern wheel gives us more years of life—yes, in two ways at least. It enables a man to accomplish more work every day, and it gives him strength and energy to actually "run away from his funeral," or, in other words, to push the funeral off indefinitely. I do not mean to be irreverent, but I borrowed the phrase from one of the wheel circulars, and it has seemed to me to express a great truth.

THE GAULT EVERBEARING RASPBERRY.

Friend Gault had given up seeing me that day, although I told him I was coming; but he was very glad notwithstanding; and when I looked at his old original patch of Gault raspberries—the ones where the bearing wood stood up three or four feet high, I did not wonder he wanted me to see it. There were the greatest masses of raspberry bloom I ever saw in my life, and they were humming with bees. And this, mind you, is the first crop only—the crop on the old wood of last year's growth. After this is gone, and the old canes that have borne the crop are cut out, then comes still another crop, prolonged continually till frost; and the last crop on the new growth of wood consists of finer and larger berries than the first. I do not know whether the quantity is equal to the first or not—perhaps not. This old original patch has been pretty well manured; in fact, I do not see how such quantities of bloom could be produced otherwise; but on his new plantation, where he raised the plants last year, and is preparing to raise new ones this year, there was not manure enough so that I could discover any of the effects of it, nor the manure itself, in the soil. It was just fair potato ground, and rows of nice potatoes were already growing between the rows of raspberries. Well, I looked at the thrifty young plants, admired the strong sturdy shoots (many of them just bursting through the sandy loam), for about half an hour, and I asked questions innumerable; but for all that, I confess I do not exactly understand the whole mystery of the habit of this wonderful plant. One thing is certain: It has such a pertinacity (if that is the word) in bearing fruit in season and out of season, that blossom-buds keep pushing out on the old and new wood. For instance: Quite a number of the readers of GLEANINGS have purchased one or more plants. You put them in the ground, and in a little while a raspberry-shoot came up. When a foot or more high, it commenced to put out blossom-buds. Well, this first shoot comes from the short stem on the old wood, and behaves itself like old wood. Two or more of these stems may push out, having blossom-buds on them; but after a while the stronger and ranker shoot will push up from the root itself. These were just pushing out in considerable numbers; and this is the new wood, or new growth. The two may be distinguished by the time of starting, and by the figure and color of the plant. The new growth is a much stouter plant, and of rather different color. These grow around the first shoots, which come from the old wood; but eventually they, too, proceed to bear fruit, not only from the tip end of the central shoot, but on the branches that come out all the way down, sometimes clear down to the ground; and if we have much rainy weather, the many clusters of berries will have to be mulched with straw, or something of the sort, to keep them out of the dirt. I suggested stretching a wire a foot and a half or two feet from the ground, and tying up these clusters to the wire.

Now, if you let the vine bear fruit all it wants to, you will never get any young plants. It will just keep bearing fruit, and increasing, until it becomes a great clump of roots and shoots; but if you wish to get new plants you must pick off the blossom-buds; then you can get new plants by layering. This is the plan in outline; but should you visit friend Gault, and see how he manages, you would find more queer things coming out here and there than you expected. His young plants occupy now about two acres of ground, and he says he is actually obliged to do every bit of hoeing in this patch himself. He says he does not know of a man or boy who would not chop off those precious shoots together with the weeds, when they were just pushing through the ground around the hills. And, by the way, I presume I have lost something in that way already by letting the boys hoe *my* bed of Gault raspberries.

Prof. W. J. Green, of the Ohio Experiment Station, is to visit the place when the first fruit begins to ripen—probably about the first of July; and it is to be my privilege to be there with him.

OURSELVES AND OUR NEIGHBORS

By A. I. Root.

If thy brother shall trespass against thee, go and tell him his fault between thee and him alone; if he shall hear thee, thou has gained thy brother.—MATT. 18:15.

Dear Mr. Root:—I write to let you know how much pleasure your different articles on Christianity give me every month. There is only one fault with them—they are not long enough. I always hate to come to the end of them, for they are very instructing to me. Speaking of what you did in the last GLEANINGS, May 15, reminds me that I wish you would some time tell us how a person ought to feel and do, who has those around him who are stealing and backbiting. I mean, I suppose you know, on the Christian side. I know you have had papers pretty nearly on such a subject, but not quite in this line. You know how natural it is to have no heart for any one who is nice and pretty before your face, but different when your face is somewhere else. Now I should just like to know what a Christian feeling should be toward such a one as that, and especially if, with all the rest, they are actually *stealing* from you. Could you be very friendly or loving toward a person who does that way? and how? if so, I should like to know. If you had ten pages in this line in your paper it would not be any too much for me; for when I first begin your articles I keep reading till the end comes, and am sorry when through, as I have told you before; for it speaks of what people who want to be right should do, and tells how to do. ANNIE BULL.

Meriden, Conn., May 18.

My good friend Annie, you pay me a rare compliment in the above kind letter, especially where you say that these Home Papers and Neighbor Papers tell what people should do who want to do right. May God help me do this. If my many experiences and trials have fitted me to teach in the line of righteousness, and if I indeed have a natural gift in this direction, may God bless and sanctify that gift, and baptize me with his Holy Spirit, that I may teach aright! In the first place, my dear young friend (for I take it for granted you are but a child comparatively, even though you love righteousness and hate iniquity), let us be sure that the prince of darkness has not got into our own hearts, and persuaded us that people are worse than they really are. It seems to me the great besetting sin of the world—in other words, the great stronghold of Satan—is in making us magnify and enlarge the faults of our neighbors, and inducing us to jump at conclusions. It is an awful thing to steal from one's neighbors. We ought to be careful how we use the word "steal," in just the same way that we should be very careful how we use the word "lie," or call people liars. Nothing but the most extreme and aggravated cases should authorize us to use these severe words. A great many times in my life I have decided, "Here is a clear case of stealing, and nothing else; there can be no mistake about it." Notwithstanding, however, remembering past experiences of where I jumped at conclusions in such matters, I decided to commence by being very mild and gentle. In fact, I have a good many times gone to the offender, and chosen my words with such gentleness that it seemed to me for a time almost as if I was making a hypocrite of myself in not being outspoken and plain, and calling things by their right names. But later on, again and again I have been, oh so glad! that I did not call folks thieves and liars. A case is right before me now.

Our people here now all get their pay at the bank. The time-clerk figures up the number of hours they have worked; and Saturday night, as they stop work, they get their check on the bank. A young man came to me a few days ago, saying his envelope and check could not be found, although the time-clerk knew it was made out. I told him it was probably given to somebody else by mistake, and that we should hear from it in a day or two. Finally he went to the bank, and, sure enough, there was the check duly paid. It was paid to another young man. The case *seemed* to be very plain and clear. The offender had discovered that two checks were given him instead of one. He presented them both; but when an explanation was required, he said the absent party had desired him to get the cash for him. As this latter is frequently done—that is, as one workman frequently goes to the bank and draws the cash for one or more of his comrades—nothing would be thought about it. But the one who lost his wages told me that he was not even *acquainted* with the boy who drew his money. As there were over a hundred at work for us, he did not even know there was such a person, in fact. Now, I was foolish enough to forget former experiences, and to denounce the absent friend before I had looked into the matter, or had had further explanation. I mentioned the matter to the foreman of the wood-working rooms. He said right off something like this:

"Why, Mr. Root, there must be some mistake about this. This person is a married man, and in good standing, and he certainly would not tell such a falsehood for just a few dollars when he knows the whole thing must be found out very quickly."

This seemed reasonable, it is true; but I think I must have been in an uncharitable mood, for I replied:

"Yes, I know it; but people do just such foolish things in a most unaccountable way, when the evidence is as plain as daylight that they would be found out in just a few hours."

Now, I want to make a little confession further. As soon as the above charge was made against the young man I began going back and recalling every circumstance I could in his history, to prove that he was vicious and unprincipled. What makes us in such a hurry to think evil of anybody, especially when circumstances seem to be against him? Why, the plain truth is, it is simply the work of the prince of darkness, who goes about as a roaring lion, seeking whom he may devour. At such a moment he creeps on to us and whispers all the evil things he can suggest: for it is his whole business in life to pick at folks, and find faults in their character—to set neighbor against neighbor and relative against relative. My good friend Mr. W., however, was not disposed to drop the matter right there. He is almost as sharp and keen as a detective in unraveling mysteries, and he took hold of the clews I had given him, and commenced reasoning as follows:

"Look here, Mr. Root, one of the boys is named Clare, and the other Carl. These are their first names. Now, your time-clerk, and the cashier at the bank, might easily mistake one for the other. Their second names are Barker and Rieger. Both end with *er;* and a capital B might be easily mistaken for a capital R. Carl must have drawn Clare's pay; and as the amounts due both of them were nearly the same, neither he nor anybody else noticed the difference. Let us go right in to the time-clerk and see if Carl's proper envelope and check are not *still* there uncalled for."

In a few minutes it was found awaiting its owner. I have never investigated where the part the above came from in regard to what the bank clerk said about Carl calling for Clare's money. It is not worth while, for it is evidently a mistake, like the other part of it. Nobody had done any thing wrong in the whole transaction—in fact, nobody was even *thinking* evil.

Now, there are thousands of quarrels and misunderstandings, and perhaps lawsuits, that come about by an accident like this. Sometimes they are easily unraveled; and at other times they may, perhaps, always remain a mystery. During the height of the strawberry season last year, the proceeds of nearly a load of strawberries were lost, and all our efforts up to the present time have been unavailing to detect where the loss came in. I am perfectly satisfied that my men and boys were entirely innocent and honest. If there were any pickpockets in Medina I might think that one of these light-fingered gentry picked the money from one of their pockets.

Once more: Before we adopted this plan of sending our workmen to the bank to get their pay, one Saturday night, when toward $1000 in cash was brought down from the bank, about $40.00 had disappeared. It has never yet been found, nor has any trace of it ever come to light. The money was all handled by honest, faithful women, who would not take a copper any more than I would. And such things do happen more less in business. The lesson to me was, that money should not be handled in that way. Our banks and banking institutions are the proper places for money. It should go there whenever the amount gets to be sufficient to tempt people, and it should stay there till the owner calls for it. Since giving our employes checks on the bank, instead of handling so much loose money, I do not think we have lost a copper.

I have gone into all these details because it points out that proper methods of doing business will not only remove temptation from those who might be tempted, but it will greatly lessen the chances of mistakes and loss.

In the two cases I have mentioned above, it would seem quite clear that somebody had been stealing, and we might decide in our minds pretty nearly who the person or persons were. But even with very plain evidence we might make a mistake. In fact, a great many times something, perhaps long afterward, transpires to show that there had been no stealing at all. For instance, several months after the loss of the money during strawberry time, Mrs. Root found a wad of bills in one of my pockets that I very seldom use; yes, and when unrolled there was $25.00, and I do not know, even to this day, where that money came from. I can not well see how it could have any connection with the money received for the strawberries. but still it might have had. The very best and most careful of people are sometimes taken with fits of absent-mindedness.

Our text tells us to go straight to the person whom we think has wronged us, and to himself alone, and talk it over. Oh if people would only do this, instead of talking the matter over with some neighbor or somebody else! It may be well to ask counsel of some Christian person; and, in fact, I know by experience that it is a very safe thing to go to the pastor of your church. Tell your minister all about it, and ask his advice. But, above all, go to your neighbor *himself*. Why, I have known people who were really bad — yes, those who had been tempted to steal — when appealed to in a Christianlike way, to feel so ashamed of themselves that they owned up their offense; and this shame, to think they had been found out, and reproved in a kind and Christianlike way, I verily believe made them *more* sorry for their sin than if they had been fined or put in jail. A detective will tell you to be careful that your evidence is as strong and clear as you can make it before you charge the person with the wrong.

A great many times I am told that some of our people here are doing wrong. Where it is *possible* to do so, I always prefer to wait till I can see the offender committing the offense; then when I go to him and tell him plainly and kindly that I know what he has been doing, almost the first words are, "Who told you so?" or, "Somebody has a spite against me, and has been telling you this to get me into trouble." The offender generally watches me narrowly at this critical moment to see if he can find out how much I really know about the matter. If, however, I am able to say, "Look here, Johnny, nobody has told me; I came up behind you when you did not know I was around, and I purposely let the matter drop until I could see you by yourself, and talk to you about it—I have not mentioned the matter to any one, and nobody knows any thing about it except you and me," then if a person who has committed a wrong *ever* feels really thankful, such offender at such a time almost always begins to feel glad that it is only between himself and myself — especially if I have done my duty as a Christian so far as to convince him by this time that I am his *friend* and not his *enemy*. And then what a feeling comes into the heart of the servant of Christ Jesus — a feeling that seems almost as if spoken in words, "Well done, thou good and faithful servant"! The reason why this feeling comes is, that you have fulfilled the command expressed in our text, "Go and tell him his fault between thee and him alone."

Now to the main question: How shall we treat a person whom we have reason to believe is hypocritical, or, if you choose, one who is really guilty of the habit of stealing? I admit this is a difficult question to answer. There may be circumstances when we should not at once follow the injunction of the text, and tell him plainly of his fault. I often meet such cases. I want to see the person alone, and sometimes it can not be managed without drawing suspicion toward him in a way that I do not think best. I often let the matter pass until an opportunity occurs to see him by himself. If a person is wronging me in this way, I do not think it wise or best to refuse to speak to him, at least in a civil way. Neither is it right to treat him just as cordially as if nothing of this kind had happened, for this latter course would strengthen him in his notion that he was escaping detection, and that he was altogether "too smart to be caught" There is a golden mean between these two extremes. I would be civil and courteous to everybody, and I would, under *some circumstances*, even shake hands with a man whom I knew was stealing from me day by day. But I should not want this state of affairs to continue very long. If the person in question should notice that you have not been as cordial as usual, and should ask you for an explanation, then you have an excellent opportunity to speak plainly. If there is a mistake, or if there are any extenuating circumstances, he will, if you deal gently with him, usually state these circumstances fully. Some may say that there may be no extenuating circumstances for stealing. Well, in one sense that may be true. I think it bad policy to take the ground that people are excusable for stealing and lying. I do not like such doctrine. But often there are extenuating circumstances. There are reasons why we should "deal gently with the erring." One of the reasons urged most frequently is, that sombody has wronged you, and that the only way you can get your just dues is to steal it back again. That is bad philosophy. Neither the laws of our land nor those of God give any authority for such a plan for getting your just dues. A good many people have an idea—especially in these latter days—that they do not receive adequate pay for their sevices, and therefore excuse themselves for pilfering from their employer; and the same logic is used toward railroad companies, or even toward the government of the United States — but it is Satan's work — the whole of it.

In regard to this matter of treating people whom you know to be enemies in sheep's clothing, I think I have erred in going to both extremes. I have been so gentle and kind to those who were wronging me that it was like casting pearls before swine. They looked down upon me, and presumed so much upon my good nature that finally I decided that forbearance had ceased to be a virtue, and then I swung over quickly or too far to the other extreme, and showed them that I could *fight* as well as pray for those who persecuted me and said all manner of evil against me. My conscience troubled me at first because I had been too *easy* with the transgressors, and then at last it troubled me because I had been too *harsh*. The Bible tells us that we should be as wise as serpents and harmless as doves; and it is *indeed* a pretty narrow path to take just the golden mean. The path to righteousness is *indeed* a straight and narrow one, and it takes more than human strength and wisdom to swerve *neither* to the right nor to the left. It takes help—it needs help from Christ Jesus; and we may rejoice that we have the promise, "Lo, I am with you alway, even to the end of the world."

Sometimes it seems impossible to decide positively just whether a person is guilty or not. I remember of having quite a long talk with two friends of mine. There was guilt and crime between them. Evidently one of the two was guilty, and the other was innocent; but each one was so positive that I gave it up—I could not decide which was guilty and which was innocent. Finally I said, "Boys, let us drop the matter right here. Please believe me when I tell you it is best not to say a word more about it until some future developments shall decide. I will try to regard you both as innocent until circumstances shall determine." One of the two proved to be straightforward and honest, and is now. The other, from that time forward, began to show by little incongruities and discrepancies that he was not strictly honest. When Satan gets hold of an individual he never lets go; and one who succeeds once by prevarication and falsehood will soon get into trouble again in the same way; and his future conduct often decides the question quite plainly whether he was guilty or innocent. In view of this, oh let us strive and work hard! "Blessed are the pure in heart, for they shall see God." The one who holds fast, through all sorts of trials, to strict honesty and integrity, will draw nearer and *nearer* to the great God above; while the one who commences by deciding that falsehood is sometimes better than truth, gets further and *further* away as the years pass on, from the God who made him.

SPECIAL NOTICES FROM BUSINESS MANAGER

JAPANESE BUCKWHEAT.

We have been able to supply all demands for seed, though we might have sold more if it were possible to name a lower price. Those who have seed for sale are holding for a good price, so we are not able to offer any better prices than named in our last, which are, 50c per peck; 85c per half-bushel; $1.50 per bushel; $2.80 for 2 bushels; $13.50 for 10 bushels. We have it in stock, and available at several points east and west at these prices.

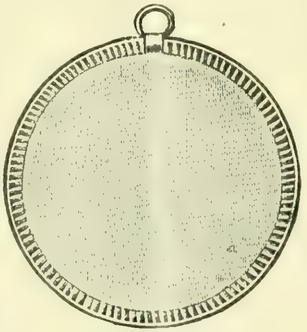
DECLINE IN BEESWAX.

Since the cold wet weather in May, which seems to have been quite general, and which has had a depressing effect on bee-keepers, orders for all kinds of supplies have dropped to a very small volume. The demand for foundation has decreased, and supply of beeswax more plentiful. We therefore mark down the price we will pay for average wax, delivered here, to 23c cash, 26 in trade, until further notice. Selling price of refined yellow wax in small lots will be 32c per lb. Ordinary market wax, 30c.

IMPORTED QUEENS.

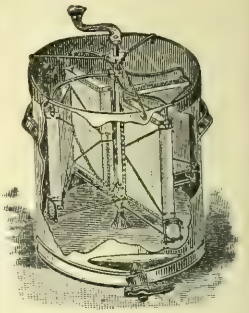
Some three or four weeks ago we received a consignment of imported queens, all of them extra fine ones. They have now been in the apiary a sufficient length of time for us to test them to see whether their bees are well marked, and also to see whether the queens themselves are prolific. Price for the best imported, during June, $6.00; July, $5.00; fair imported, $1.00 less. The queens as well as the bees are rather of the leather-colored order. They are extra honey-gathers, and we have never seen any stock quite so gentle and easy to handle. We have taken pains to get our queens from that portion of Italy where the stock has the above mentioned qualities as far as possible.

AUGITE STOVE-MAT.



We must surely have reached the bottom on stove-mats this time. We are now able to offer them at 10c each; 2 for 15 cts., or 4 for 25c; 65c per doz.; $1.80 for 3 doz.; 6 doz., $3.50; 12 doz. for $6.50. By mail, 5c each extra. Here is a chance for canvassers to make a nice profit, and bring a blessing to the homes where they sell. We still handle the original augite mat, which we consider superior to all its imitators.

STANLEY AUTOMATIC EXTRACTORS.



We still have left of the Stanley Automatic extractors 3 four-frame machines. We got these with other stock when we bought out E. R. Newcomb some three years ago. We had originally some 20 or more machines, and the stock is now worked down to 3 four-frame. The regular price at which these four-frame machines sold was $20, without gear. We offer these, to close out, at $10; or for $14 we will put on the bevel gear used on our Cowan machines, or one of that pattern. This machine, with gear, used to sell for $28.00. Remember, we can not duplicate these prices when these machines are sold. If you want one, order at once.

BUSH LIMA BEANS.

Now is the time to plant them; and as we have yet quite a little stock on hand, we offer them for the remainder of the season at about the price of pole limas; viz., $2.50 per peck. In smaller quantities we will furnish them at 40 cts. per quart. This refers to either the Kumerle or Burpee's bush lima. The Kumerle is no doubt the richest and most luscious lima bean in existence; but the Burpee bush bean is larger, and will, perhaps, give a larger crop for field culture. Should you order, please refer to this special offer in GLEANINGS for June 15.

PLANTING POTATOES DURING THE LAST OF JUNE.

On a recent visit to Wilbur Fenn's I found that his large crop of Monroe Seedlings was planted the *last* week in June instead of the fore part. Well, our Monroe Seedlings are now all sold out, but we have yet left about 30 bushels of Freeman potatoes, and these are still earlier than the Monroe Seedlings. I think they would mature a crop nicely if planted, say, the 4th of July. Until they are closed out, we offer them for 50 cts. per peck, and this is just about the price of new potatoes just now. My impression is, that our old Freemans are nicer for an eating potato than the greater part of the new potatoes on the market.

FUNGI AND FUNGICIDES, BY CLARENCE M. WEED.

A beautiful book with the above title, from the O. Judd Co., has just been placed on our table. It considers all fungoid diseases that affect our grain crops, fruits, and vegetables, and gives directions for treatment to eradicate the trouble so far as our experiment stations have succeeded up to date in combatting these enemies of agriculture. Every fungoid disease that has come to my notice is described with excellent illustrations, and all the remedies that have been found profitable, fully considered. Of course, we are not yet able to control entirely all this fungi—the pear-tree blight, for instance. We are told that, so far, science has failed with this, but that decidedly beneficial results are obtained by cutting out the blighted limbs or twigs, and burning them just as soon as the trouble appears. Years ago my mother succeeded in raising beautiful pear-trees by the above method. She said she was not going to have her trees ruined by that disagreeable-looking blight: and by cutting it out and putting the twigs in the stove just as soon as she could discover it, she made our trees healthy and productive. Well, the book considers this whole matter, from the dry rot on the plum-tree to the smut on the corn, the scab on the apple, the anthrachanose on the raspberry, the club-foot of the cabbage and cauliflower, the strawberry rust, and even scabby potatoes. Many of these fungi, I believe, we have got pretty well in hand. The book contains 220 pages and 90 illustrations. Price, bound in cloth, $1.00; paper, 50 cts. We can mail it from this office if desired.

HOW TO PREPARE AND SHIP COMB HONEY.

The time is near when we hope many of our readers will have a good crop of honey to market. Your success in securing a fair price depends very largely on how you put up your product for market. If it is comb honey, see that the sections are scraped clean if they have not been kept clean in the hive. Even with the best surplus arrangement for protecting the sections, some scraping will be required. Then the honey should be carefully graded. Even if you have only a small lot, grade it. The best will bring enough more to amply pay you for your trouble. Put it into nice clean cases, with glass on one side. Better lay a sheet of porous paper in first, to soak up any drip that might come from broken capping or comb. If you are going to ship it any distance by rail, either by express or freight, unless by the carload or large lot that will not be transferred, do not ship it in the small cases with additional crating. Pack anywhere from 100 to 200 lbs., as is most convenient, in a crate with a layer of hay or straw under it, and handles projecting to carry it by. Nine 24-lb. cases or eighteen 12-lb. cases make a good-sized crate for shipping. Since adopting this method of crating, we do not remember a single bad case of breakage, excepting one which went by express, and which was not properly put up. We scarcely remember of having shipped, within the last few years, a case or two of comb honey by express which did not arrive at destination with more or less broken sections. In the eastern classification, comb honey in boxes has recently been reduced from first to second class; and as it goes more safely by freight, as well as more cheaply, we do not advise shipping by express.

WARRANTED QUEENS.

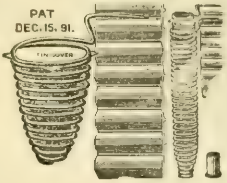
Why buy *untested* queens and take your own risk of pure mating, when I warrant every one of my queens to be purely mated? Look over the ads. and see how few *dare* do this. Warranted Golden Italian queen, $1.00; six for $5.00, ready about May 1st. Safe arrival and satisfaction guaranteed.

S. F. TREGO, Swedona, Illinois.

CONVENTION NOTICES.

The Carolina Bee-keepers' Association will meet at the Court house, Charlotte, N. C., July 19, at 10 A.M. A. L. BEACH, Sec.

Control Your Swarms, Requeen, &c.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. 12 Cell-protectors, 60c; 100, $3. 12 Cages, $1.00; 100, $5, by mail. Circular free. Address **N. D. WEST, Middleburgh, Scho. Co., N. Y.** Sold also by all the leading supply-dealers.

I have one of the choicest flocks of

Brown Leghorns in the State.

Keep no other kind. Eggs, 75c per 15; $1.25 per 30.

B. G. SCOTHAN, Rogersville, Mich.

I Will Exchange

For your name and address, my pamphlet "How I Produce Comb Honey," and catalog of Chaff and Dovetailed hives, T Supers, Sections, Foundation, and every thing needed in the apiary. First-class goods, and prices reasonable.

Geo. E. Hilton,
Fremont, Mich.

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds

W. Atlee Burpee & Co., Philadelphia, Pa.

New Cowan Reversible Extractor

Is now indorsed by the best and most extensive bee-keepers of the country. . . . . .

Some of its Features are:

Reversing Without Stopping.

Can be done by simply slowing up the motion.

Gear Beveled.

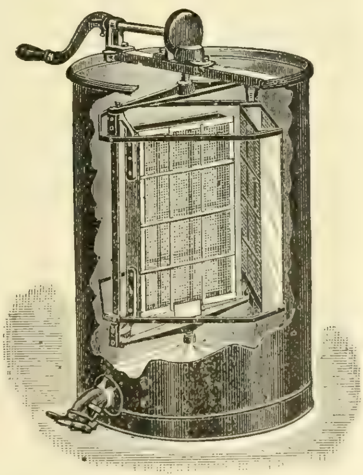
Strong and well made, and operated by a good substantial handle.

Milk-can Handles

are attached to the can.

Two Coats

of carriage black, and neatly lettered.



Can of heavy XX Tin

for 2-frame; four and six frame of galvanized iron.

Bottom

of improved type.

Honey-gate

is of a new pattern and of ample capacity, and malleable-iron handle.

Reversing Pockets

braced stronger than ever, and guaranteed not to bulge.

Gear and Reversible Pockets

easily removed by taking out four screws.

Two-frame extractor, L. size, $10.00; four-frame, L. size, $20.00; six-frame, L. size, $26.00. The four and six frame extractors also reverse without stopping. 52-page catalog of Bee-keepers' Supplies free.

A. I. ROOT, Medina, Ohio.

DID YOU KNOW

That I have the LARGEST STOCK of **BEE-KEEPERS' SUPPLIES** IN NEW ENGLAND?

Consisting of Dovetailed, Simplicity, and other styles of Hives. My brand of XX white thin Foundation, and Polished one-piece Sections, are the nicest on the market.

A full line of every thing needed in the apiary at prices to suit the times.

BEES, QUEENS, and NUCLEUS COLONIES of my old reliable strain, at prices way down.

Send for 34th Annual Catalogue before you buy your stock, remembering the best is always the cheapest.

Address **W. W. CARY,**
4tf **COLRAIN, FRANKLIN CO., MASS.**

World's Fair Medal

Awarded my ***Foundation.*** Send for ***free samples.*** Dealers, write for wholesale prices. Root's new ***Polished Sections*** and other goods at his prices. ***Free*** Illustrated Price List of every thing needed in the apiary. **M. H. Hunt.**
Bell Branch, Mich.

TESTED ITALIAN QUEENS, $1.00 each; Select tested, $1.50; untested, 65 cts. Two-frame nucleus, with tested queen, $2.00; with untested queen, $1 50. Queens ready April 1.
Stewart & Cooper, Quebeck, Tenn.

Bee-keepers' Guide.

New edition, just out. This is conceded to be the fullest, most scientific, and one of the best of our American bee-books. Every bee-keeper should have one of the late editions. Price, by mail, $1.25. Liberal discount to the trade.

A. J. COOK, Claremont, Cal.

Golden Wyandottes.

No better birds in America. Cockerel, $5 00. Trio, $7.00. Eggs, $2.00 per setting.
E. D. Keeney, Arcade, N. Y.

BBB'S!

If you keep ***BEES,*** subscribe for the **Progressive Bee-keeper,** a journal devoted to Bees, Honey, and kindred industries. ***50 cts. per year.*** Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address
LEAHY MFG. CO., HIGGINSVILLE, MO.

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my ***Golden Italians.*** They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. ***Sections, $2. per M.*** Dovetailed hives way down.
CHAS. D. DUVALL, Spencerville. Md.

Daughters of one of ***Doolittle's very best*** golden five-banded breeders, mated to the very choicest drones from ***Jennie Atchley's*** 5-banded strain, thereby securing a direct cross with the best 5 banded stock obtainable. My aim is to rear nothing but the best, regardless of cost. Untested, 75c; ½ dozen, $4.25; dozen, $8.00. Safe delivery and satisfaction. Money-order office, Monongah. P. O. address, Worthington, W. Va. Queens ready May 25. ***L. H. Robey.***

For Sale.

30 colonies of Italian bees in A. I. Root's eight-frame Dovetailed hives, in good condition. Safe delivery guaranteed. ***JOHN GRANT.***
Batavia, Clermont Co., O.

Beautiful Golden Queens

If you want to see something pretty, send for a sample of my Golden Italian Bees. Sample and circular free. J. F. MICHAEL, German, Darke Co., O.

$100 Worth of Bee Supplies at One-Half Price.

Address for list and information,
F. H. MCFARLAND, Hyde Park, Vt.

Look Here, Bee-keeper!

If you are in need of some bee-supplies, write for catalogue and price list. Every thing sold as cheap as the cheapest. **W. E. Smith.**
Kenton, Hardin Co., O.

WILLIAM HEASTMAN, CITRA, FLA.,

Breeder of the celebrated "Orange-blossom" Italian Bees and Queens. Untested, 75 cts.

Attention! Bees for Sale.

Full colonies and nuclei. Good stock; Langstroth frames. Write for prices.
H. Lathrop, Browntown, Green Co., Wis.

Italian Bees and Queens

Ready in May. Queens, $1.00; bees by the lb., $1.00; 1-frame nucleus, $1.25; 2-frame, $2.25. Also Barred P. R. eggs for setting, 15 for $1.00.
Mrs. A. A. Simpson, Swarts, Pa.

STRONG, FULL COLONIES

of Pure Italian Bees, in Root's new Dovetailed hive, after June 1, only $4.00 each.

N. A. KNAPP, Rochester, Lorain Co., O.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,
12tfdb ***Sole Manufacturers,***
Sprout Brook, Montgomery Co., N. Y.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis.

Root's Goods at Root's Prices.

We have the best shipping-facilities in the Northwest. We can save time and freight by shipping direct on some 40 or more railroads, without change of cars, which saves handling, and goods are much less liable to be broken or smashed.

Root's 1893 No. 1 white sections, 4¼x4¼x7 to foot, 1⅞, and $1\frac{15}{16}$, at $2.50 per 1000. No. 1 cream, 4¼x¼x1⅞ and $1\frac{15}{16}$, $2.00 per 1000.

Write for price list and what you want.

H. G. Acklin, 1024 Mississippi St.,
St. Paul, Minn.

Northwestern Agent for A. I. Root's Bee-keepers' Supplies.

Popular Science News,

A monthly illustrated magazine devoted to all popular scientific topics.

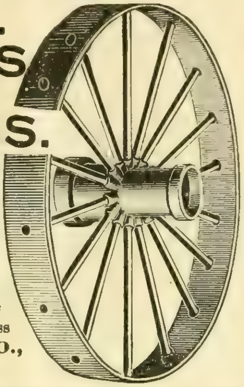
$1.00 per year.

ABLY EDITED.

Articles contributed by leading and best known writers throughout the world. It should be read by all.

Popular Science News,
72 William St., New York City.

METAL WHEELS for your WAGONS.



Any size you want, 20 to 56 in high. Tires 1 to 8 in. wide—hubs to fit any axle. **Saves Cost** many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires. Catl'g free. Address

EMPIRE MFG. CO.,
Quincy, Ill.

☞In responding to this advertisement mention GLEANINGS.

WALTER S. POUDER,

162 Mass. Ave. Indianapolis, Ind.

SUPPLIES Standard Goods—Popular Prices—Catalogue Free.

"BUSY BEES"

A book telling how to manage them—10 cts. in stamps; or free to those sending names of 5 bee-keepers

BEE SUPPLIES!

send for free copy of **ILLUSTRATED CATALOGUE**, describing every thing useful to a **BEE-KEEPER.** Address

T. G. Newman, 147 So. Western Ave., **Chicago.**

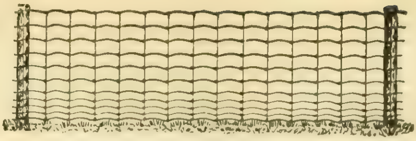
SECTIONS CHEAP!

Until sold, we will sell the sections listed below in quantities of 500 or more at $1.50 per thousand for creams, and $1.00 per thousand for No. 2. All 4¼ x 4¼ sections, open two sides

41,000	2	inch cream.	37,000	2	inch	No. 2.
47,000	1¾	" "	91,000	1 $\frac{15}{16}$	"	"
116,000	1⅞	" "	20,000	1⅞	"	"
134,000	7 to ft.	"	87,000	1 $\frac{13}{16}$	"	"

253,000 7 to ft. No. 2.

PAGE & KEITH, NEW LONDON, WIS.



DROP A POSTAL IN THE SLOT

of the mail box and draw an answer that will be of great advantage. Write on the card—where you live, how many acres of land you own, how much live stock, what kind of fence you have, what it cost per rod and how much new fence you need to make your crops safe against unruly stock from within or without. Address card to

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

☞In responding to this advertisement mention GLEANINGS.

Italian Queens.

Either 5-banded golden or 3-banded leather-colored. Untested, $1.00 each; one-half dozen, $4.50. Tested, $1.50 each. Select tested, $2.50 each. Extra select tested, fine breeding queens, $3.50 each.

E. A. SEELEY, Bloomer, Ark.

Golden Queens From Texas.

My bees are bred for business, beauty, and gentleness. Safe arrival and satisfaction guaranteed.

216 well-filled 1-lb. sections is what I took from one colony in '93, containing a queen bought of you.
J. A. Whitaker, Oak Cliff, Texas.

Warranted queens, $1.00 each.

J. D. GIVENS, Box 3, Lisbon, Texas.

☞In responding to this advertisement mention GLEANINGS.

Mother Bees.

If you wish the best of queens, or mother bees, send me your orders. Untested queens, 3 or 5 band, 75c each; $4.25 for 6, or $8.00 per dozen. Tested 3-band queens, $1.50 each; fine 3-band breeders, thoroughly tested, the *best*, $5.00 each; straight 5-band breeders, faultless queens, $10.00 each. Root's goods, Dadant's foundation, and Bingham smokers.

Jennie Atchley, Beeville, Bee Co., Tex.

5-Banded Bees in Iowa.

All my bees are bred with care by the most approved methods, and from the best 5 banded breeders that can be obtained, and positively can not be excelled for beauty, gentleness, and working qualities. Fifteen years' experience. Untested, 80 cts.; 6 for $4.25; 4 and 5 banded, $2.00; straight 5-banded on application. Satisfaction guaranteed.

J. E. HAND, Eldora, Ia.

BEES QUEENS

Smokers, Sections, Comb Foundation, And all Apiairan Supplies cheap. Send for FREE atalogue.

E. T. FLANAGAN, Belleville, Ill.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

FULL LINE OF

BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

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CONVENTION NOTICES.

The Carolina Bee-keepers' Association will meet at the Courthouse, Charlotte, N. C., July 19, at 10 A.M. A. L. BEACH, Sec.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange Root's goods, at his prices, to be shipped from here or factory, for white comb honey (crop of '94 preferred) in quantity lots. See ad. in another column of June 1 issue.
B. WALKER, Evart, Mich.

WANTED.—Registered Poland-China Pigs, Jersey heifer calves, for 5-banded queens.
J. F. MICHAEL, German, Darke Co., Ohio.

WANTED.—To exchange four-horse engine and boiler, upright boiler and horizontal engine; Ft. Wayne pattern; in good order, with new grates and smoke stack, for honey-bees.
W. H. WORLEY, 7th & Johnson Sts., Keokuk, Ia.

WANTED.—To exchange for Italian queens, a few pairs of Cornish Indian Games, or Golden Wyandottes. Good stock. Satisfaction guaranteed. Write. G. A. MATTESON, Cridersville, O.

WANTED.—To exchange 1 Marlin rifle (16 shooter, 38 cal.) and 1 Gordon setter, for safety bicycle; must be in good order; will pay cash difference. Columbia preferred: must be within 300 miles.
F. L. CASH, Cool Well, Va.

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

☞In responding to this advertisement mention GLEANINGS.

Golden Italian Queens.

½ doz. untested queens.............$4 00
1 doz. untested queens............. 8 00
Fine queens for breeding purposes 3 00

Sample of bees upon application. I can please you. Send a trial order.

J. F. MICHAEL,
German, Darke Co., O.

☞In responding to this advertisement mention GLEANINGS.

Italian Queens From one of Doolittle's best breeders. Yellow-to-tip bees; excellent workers. Untested, 65c; 6 for $3.50. Tested, $1.00. Nice **yellow** virgins, 30c; 6 for $1.50. Satisfaction and safe delivery guaranteed. **H. G. Quirin, Bellevue, O.**

TESTED ITALIAN QUEENS, 75 Cts.
J. C. WHEELER, PLANO, ILL.

Special Offer. In order to introduce our 5-banded golden and 3-banded leather-colored bees in your locality we will sell queens at the following prices: Untested, 60c; warranted, 75c; tested, $1.00; select tested, $2.00; the best breeding-queens, $6.00. Address all orders to

Leininger Bros., Ft. Jennings, O.

P. S.—We have two large queen-rearing yards containing nearly 500 nuclei.

Daughters of one of *Doolittle's* best 5-banded breeders, mated to the choicest drones from Jennie Atchley's 5-banded strain thereby securing a direct cross with the best 5-banded stock obtainable. If you want the best at hardpan prices, send in your orders. Untested, 60 cts.; 6 for $3.00; tested, 90c; selected extra yellow $1.25. Safe delivery and satisfaction. Money-order office, Monongah. P. O. address, Worthington, W Va. **L. H. ROBEY.**

WANTED.—To sell or exchange one or two hundred swarms of bees for land, also two good basswood locations for sale.
DE NORRIS KING, P. M., Hazleton, Iowa.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queen which they wish to dispose of, we will insert notices as below first insertion free of charge After the first, 10 cents per line We do this because there is hardly value enough in thes queens to pay for buying them up and keeping them in stock and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

One year old mismated Italian queens in Benton cages, 50c each. J. C. WHEELER, Plano, Ill.

I have about 25 mismated Italian queens, at 40c each, or 3 for $1.00. Some are almost pure.
M. W. STRICKLER, York, Pa.

Twelve hybrid queens ready to mail after July 5 at 25c each.
CHAS. W. EDEN, Amber, Jones Co., Iowa.

About 15 black and hybrid queens, 25c each.
P. J. THOMAS, Fredonia, Kan.

I have about 100 black and hybrid queens, will sell as they run at 25c each, 5 for $1.00. Ready after July 10. WM. A. SELZER, Wyncote, Pa.

Golden Italian queens (mismated) of this season's rearing at 35 cts. each; 3 for $1.00. These are five-banded queens, and many of their bees are 3 and 4 band. Safe delivery. Money-order office, Decatur
CLEVELAND BROS., Stamper, Newton Co., Miss.

I have 50 hybrid queens, ages unknown, that I will mail for 25c each; buyer to take risk in transit, or 35c and guarantee safe arrival, they are high grades
T. P. GILLHAM, Lincoln, Tenn.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—There is very little movement in honey of any kind. The new crop is not yet offered in this market, and the old is cleaned out. Beeswax brings 25c per lb.

R. A. BURNETT & CO.,
June 19. 163 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—The honey market continues to be dull, strawberries occupying the attention of both buyers and sellers. The market is nearly bare of all grades of honey, and the demand will be little until the arrival of the new crop. Best comb quoted at 13@15; dark lots, 10@11. Extracted, 7@7½. Beeswax, 25@26.

M. H. HUNT.
June 19. Bell Branch, Mich.

BOSTON.—*Honey.*—Our market on extracted, 5@7, with fair demand and light supply. Comb, 12@15c, light demand and fair supply. Beeswax, scarce, and wanted at 27c.

E. E. BLAKE & CO.,
June 20. Boston, Mass.

ST. LOUIS.—*Honey.*—Market practically unchanged. New crop extracted is withheld on account of prevailing low prices. We quote comb at 10@14; extracted, in cans, 5@6; in barrels, 3@3½. Prime yellow beeswax, 26½.

D. G. TUTT GROCER CO.,
June 20. St. Louis, Mo.

KANSAS CITY.—*Honey.*—No new comb honey in the market yet, and very little old on hand. Very good supply of old extracted. We quote No. 1 white 1-lb. comb at 13@14; No. 2, 12@13; No. 1 amber, 11@12; No. 2, 8@10; extracted, 4@6. Beeswax, 20@22.

CLEMONS, MASON & CO.,
June 20. Kansas City, Mo.

CLEVELAND.—*Honey.*—There is very little demand for honey this week. No. 1 white is selling at 13; No. 2, 10@11. Beeswax, 25.
at 25.

WILLIAMS BROS.,
June 19. 80 & 82 Broadway, Cleveland, O.

CINCINNATI.—*Honey.*—Demand is slow for all kinds of honey. The range of prices is 4@6 for extracted honey, and 12@14 for best white comb. There is no sale for dark honey at any price. Demand is fair for beeswax at 23@25 for good to choice yellow.

CHAS. F. MUTH & SON,
June 19. Cincinnati, Ohio.

KANSAS CITY.—*Honey.*—No honey on our market.

HAMBLIN & BEARSS,
June 20. Kansas City, Mo.

SAN FRANCISCO.—*Honey.*—Honey firm; crop will be very light indeed this season, for lack of rains. We quote extracted honey at 5½@6½. Comb, 10@11½. Beeswax, 24@25.

SCHACHT, LEMCKE & STEINER,
June 11. San Francisco, Cal.

CHICAGO.—*Honey.*—Demand for honey at this season of the year restricted. We look for an active demand for new comb honey that is of good quality and put up in desirable packages. We shall hold our first receipts at 16c per lb., unless otherwise instructed. Extracted honey selling, depending upon quality, at 5@6 per lb. Beeswax, 25.

S. T. FISH & CO.,
June 19. 189 South Water St., Chicago, Ill.

1894 white-clover honey, comb and extracted. Please write for prices on same.

J. B. MURRAY, Ada, Ohio.

Untested Queens ❊ ❊ ❊

From the best Imported and Golden stock, 60 cts. each; $6.00 per dozen. Warranted queens, 80 cts. each. Tested queens, $1.00 each. Safe arrival and satisfaction guaranteed.

J. W. K. Shaw & Co.,
Loreauville, Iberia Par., La.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

EDWIN ROBINSON. *W. M. GRAY.*
ESTABLISHED 1866.

Robinson & Gray,
SUCCESSORS TO
B. F. Southwick & Co.,
Foreign and Domestic Fruits, Canned Goods.
47 & 48 South Market and 5 & 6 Chatham Streets.

Headquarters for Vermont Shipments of White-Clover Honey.

It will be the endeavor of the new firm to meet the wishes of their patrons in the future as the late firm has in the past.

Thanking you for the many past favors received by the late firm, we hope to be favored with a liberal share of your patronage in the future.

All orders and inquiries by mail or otherwise will receive prompt attention. Very respectfully,

Boston, April 2, 1894. ROBINSON & GRAY.

Bees and Supplies

Always on hand. Send for circular.

I. J. Stringham, 105 Park Place, N. Y.

Queens! Queens!

Now ready by return mail.

Bred in full colonies from the best honey-gathering strains in the country. All queens warranted purely mated, and safe arrival guaranteed. I have three distinct strains—golden yellow and dark leather-colored Italians, also Albinos.

Tested, each	$1.50
Tested, per ½ doz	7.50
Warranted, each	.75
Warranted, per ½ doz	4.00
Warranted, per doz.	7.50

Send for 44-page descriptive catalogue.

W. W. CARY, Colrain, Mass.

☞In responding to this advertisement mention GLEANINGS.

Golden Italian Queens ❊ ❊ ❊ ❊ ❊ ❊ ❊ **By Return Mail.**

Untested, 60 cts. Breeders, the *very* best, $1.50. These are daughters of one of Doolittle's best breeders and are very yellow—most of them *yellower* than *gold.* Large and prolific. Safe delivery. Money-order office, Decatur.

Cleveland Bros., Stamper, Newton Co., Miss.
Will you please mention GLEANINGS?

5-Banded Golden Italian Queens.

Untested, each, 75c; 6 for $4.25. Best only. Try them and be pleased.

CHAS. H. THIES, Steeleville, Illinois.

TO BEE-KEEPERS:

Send us your P. O. address and we will send you (free) a sample of a new wrapper that takes the place of glass on honey-sections.

Is attractive, light-looking, and consumers do not think about paying for the weight as they do with glass.

Costs about 5c a pound, and pays you double and triple cost in weight, when you sell your honey. The greatest protection in shipping honey, as it is so constructed that it keeps the sections from sticking fast to the bottom of the case, and from honey leaking as it commonly does.

H. R. WRIGHT, Albany, N. Y.

My

Apiary is now stocked entirely with young laying queens of this year's rearing. Some of them have been laying long enough so that they are tested. I will sell the tested ones at $1.00 each, or with REVIEW one year for $1.75. For $2 00 the

Queen,

the REVIEW, and the book "Advanced Bee Culture," will be sent. I am yet receiving weekly shipments of young laying queens from the best breeders in the south. These untested queens I will sell at

75 cts.

each, or with the REVIEW one year for $1 50. For $1.75 I will send the REVIEW a year, one untested queen, and the book "Advanced Bee Culture." For

10 cts.

three late but different issues of the REVIEW will be sent. The May REVIEW contains an article from M. M. Baldridge in which he tells how to get rid of foul brood with the least possible labor—no shaking the bees off the combs, they transfer *themselves* to a new hive at a time when their bodies are free from the spores of the disease. He also tells how to disinfect hives with one-fourth the labor of boiling. B. Taylor tells how to secure as much white *comb* honey as extracted.

W. Z. HUTCHINSON, Flint, Mich.

HUSTLERS!

Read what one of the largest bee-keepers of this country says: "The queens (two dozen) came promptly. They are an extra fine lot. The bees are finely marked, gentle, and *hustlers* when it comes to *honey*. I have no trouble in picking them out now from over 600 colonies."—W. L. COGGSHALL, West Groton, N. Y., Oct. 17, 1893.

Prices for queens *bred* for business from above strain, *5-band*, are, May, $1.00; later, 75c; ½ doz., May and June, $4.00; doz., $7.50. July and later, six for $3.50; doz., $6.50. Single queens *warranted* purely mated. I *guarantee* all queens to arrive safely and to be *good serviceable* queens. Send for free circular. Draw money order on, and address, **J. B. CASE, Port Orange, Fla.**

Sections, Bee-Hives, and other Bee-Keepers' Appliances at Bed-rock Prices.

Best of Goods at Lowest Prices.

Write for free, illustrated catalogue and Price List.

G. B. Lewis Co., Watertown, Wis.

LAWS' Italians surely take the *lead*. They are now in every State in the *Union* and several *foreign countries*. Fine breeders always on hand; $2 to $5 each; untested, each, 75c; 6 for $4.

Also Apples, Ben Davis, Ark. Black, Mam. Black Twig, leading varieties, whole root only; trees, 10c each; on orders of 100 I pay the freight.

W. H. LAWS, Lavaca, Seb. Co., Ark.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's strain of Italians,** the result of 15 years' careful breeding

Mr. Sam. King, Raleigh, N. C., referring to a queen purchased of me last season, says:

> I received queen June 1; introduced her on four frames in the Simplicity hive; filled out with frames of foundation. Honey taken by July 8, 155 lbs; honey taken in September, 197 lbs., and had plenty to winter on. I never saw such workers; have bees from twenty breeders.

Warranted queens, 80c each; 3 for $2.00. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 666 queens. Circular free. eitf

J. P. MOORE, Morgan, Pendleton Co., Ky.

Italian Queens Cheap.

My queens are as good as the best. Untested, 65c each; 3 for $1.75; 6 for $3.25. Tested, $1.25. Select tested, yellow to the tips, breeders, $1.50. Safe arrival guaranteed. **G. E. DAWSON, CARLISLE, ARK.**

FREE—To New Subscribers, a Choice of these BEE-BOOKS

Newman's "Bees and Honey."

This book treats of the management of an apiary for pleasure and profit. Over 200 pages, and over 200 illustrations. The book for beginners or the more advanced. Send $1.00 for the **American Bee Journal 1 year** (weekly) and get the book Free. The "Bee Journal" has 32 pages—established in 1861. Sample FREE.

"Scientific Queen - Rearing."

By G. M. Doolittle (portrait shown herewith). Tells how the very best Queen-Bees are reared in accord with Nature's way. 176 pages. $1 00 for this book and "Bee Journal" one year. Address,

GEORGE W. YORK & CO.
56 Fifth Avenue, - CHICAGO, ILL.

MONEY RETURNED

to all buying **PORTER BEE ESCAPES** not satisfied after testing them. Prominent bee-keepers everywhere use and highly recommend them as **the best**. No others received a World's Fair award. Testimonials, etc., free. Prices: Each, postpaid with directions, 20 cts.; per doz., $2.25. Order from your dealer, or the mnfrs., **R. & E. C. PORTER, LEWISTOWN, ILL.**

13 Carloads of Supplies.

This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially

FOR THE WEST.

Joseph Nysewander, Des Moines, Ia.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR MEDINA OHIO

Vol. XXII. JULY 1, 1894. No. 13.

STRAY STRAWS
FROM DR. C. C. MILLER.

Sweet clover showed first bloom June 18.

Try sweet clover, friend Root, in that hard clay where you can't get a catch of clover.

Honey sales by county associations with trade-mark labels is under discussion in England.

A delightful visit from *A. B. J.* York, bringing with him a big rain to break the long drouth, made us all happy.

Harper's Monthly is an ally to bee-keepers. See "The Welcomes of the Flowers," in March number.

Cure for burns. Dissolve 1 lb. epsom salts in 2 qts. water, and hold the burn in it, or bathe with it.—*Med. and Surg. Jour.*

I'm with N. D. West (p. 503) in wanting plenty of room to get out the first frame, and with the editor in wanting nothing screwed or wedged tight.

Clover should not be cut for seed, says Carl Zelenka, in *Bienen-Vater*, unless weather was favorable at blooming time for bees to fly. Otherwise the yield of seed will not pay.

Gravenhorst mentions a colony that did not swarm for 29 years, renewing its queens according to its own notion, and giving a larger yield than any of its neighbors. I'd like that strain of bees.

Old hives, to be used again for swarms, should be well scrubbed with strongest salt water, says Dr. Hachenberg, in *A. B. J.* He thinks he has thus stopped the troublesome desertion of swarms.

The hardest lesson, perhaps, that beginners have to learn is, that *number* of colonies doesn't count as much as *strength*. It takes backbone for a beginner with 6 colonies to bring them down to 5 by uniting a weakling with a stronger one. Yet the 5 stronger colonies will sooner increase to 100 than the original 6.

Excluders are made by Robert Nitzsche, Sebnitz, in Saxony, of hardened pasteboard, proof against moisture, gnawing, and warping. Gravenhorst commends them. Strips 4 inches wide at 5 cts. per running foot.

Queen-excluders of wire are made across the water. The claim is, that the bees like them better than the common kind, because they have no sharp edges. [Don't see how they can be accurate excluders.—Ed.]

"We formerly used two boxes (or crates) of shallow frames as a brood-chamber, and, after exhaustive trials extending over 12 or 15 years, we gave up the idea, though it was our pet notion at the time."—*Editor B. B. J.*

What with fewer frames, closer spacing, and deeper top-bars, the present Langstroth, or Dovetail, has now a capacity inside frames of 1540 cubic inches. My first Langstroths, 10-frame, had 43 per cent greater capacity, or 2200 cubic inches.

Stubborn. I put the queen of 57 over an excluder in an upper story where the bees were storing honey. She didn't lay for about 48 hours. At the end of a week, not an egg was hatched, when I succumbed and took away the excluder. No queen-cells were started.

Very stubborn. May 17 I put the queen of a strong colony, No. 76, over an excluder in a second story. Forgot about it till I opened the hive June 14 and found not an egg or brood of any kind in either story, and the queen digging for dear life to get down through that excluder. Queer.

That picture on p. 517 is fine; but isn't it just an excuse for A. I. to show up his windmill? [He didn't know it was going to be "took in" when he asked E. R. to photograph the boys. Nevertheless, he seemed pleased that the picture "took in" so much, especially that rye.—Ed.]

Foul-brood cure. Mr. Carl Schrœter, in *Deutsche Imker*, reports entire success with carbolic acid. As generally used, it is a failure, being too weak if diluted, and driving the bees out if full strength. He uses full strength, a tablespoonful mixed with as much tar, put under the frames in a little box, open enough to allow evaporation, but bee-tight. That's the whole cure, renewed every three months.

Rambler goes just a little too far on p. 505, when he claims that "a card properly adjusted around the neck" will keep bees out of a veil. I suppose he has "keep out" written on the card, and wants us to think the bees can read it. I don't believe a word of it. [An error—it should read *cord.*—Ed.]

The *American Bee-keeper* is hard down on the use of "friend" and "brother" among bee-keepers. Thinks it indicates too close familiarity. Isn't it just as familiar to call a man "dear" sir? It says the terms are never seen in the journals elsewhere. You're out there. Read the German bee-journals.

The *British Bee Journal* says that a clipped queen, when its colony swarms, "being unable to fly, drops to the ground, where, if discovered, she is joined by the bees of the swarm." Of the hundreds of cases I have had, I never knew a swarm to join a queen on the ground. Aren't you theorizing, respected *B. B. J.?*

The foundation in my sections, according to *B. B. J.*, is all hung the wrong way. In the picture, the *B. B. J.* seems right, but the wrong way works all right with me. Wonder if there's a kink in the theory. [Wonder if *actual tests* would show any preference in favor of having the foundation hung one way instead of the other. We never *noticed* that the wax behaved better one way than the other.—Ed.]

The brilliant prospect of the middle of May had a bad setback. Cold set in, and drouth, and up to June 12 starving and dragging out brood was only too common. To crown all, scarcely any clover bloom was in sight. June 16 came a grand rain, and June 20 clover is blooming, and the bees are having a picnic. [Glad your bees are having a picnic on clover. We haven't any white clover here this season, to speak of.—Ed.]

S. T. Pettit finds blisters of water under the paint of hives containing bees. That's one way I "*know* moisture will go through unpainted hive-sides" (p. 492). Look here; don't *you* know that water will soak into and through an unpainted pine board? [It will soak in to a certain extent; but will it pass through? If we accept your idea, we surely want paint because the moisture from *without*, together with a baking sun, is what ruins—i. e., checks and rots boards. Moisture from *within* is a small item. Now, then, do you *know* that bees in unpainted hives winter better than in those painted?—Ed.]

"Honestly, I wish that there were some way of cleaning one's fingers of honey, so clean that they would not be sticky, without the trouble of going to the honey-house and washing them."—*Hutchinson.* Try my way, W. Z. Wash them with dirt. Clean soil is ever so much better than stickiness. [The idea of washing hands in *dirt* to clean 'em! Well, it is a good one, and, come to think of it, we have practiced it ourselves. It removes the unpleasant sticky feeling entirely. We have often, in a similar way, cleaned grease off our hands in sawdust. When we were working among the bees every day we kept a pail of water handy; and whenever we passed that pail in the height of the honey season we gave those sticky hands a souse. Perhaps a pail of sawdust smoker-fuel might be used for a double purpose—washing hands and filling the smoker.—Ed.]

GENERAL CORRESPONDENCE

MORE ABOUT INHERITANCE.

By E. T. Abbott.

I presume I shall not be misunderstood if I venture to offer a few suggestions on this subject, and show where I can not agree with the article written by my good friend Dr. Miller. I am impelled to join issue with some of his conclusions, as I think they are founded on false premises. A brief review of a few of his statements will bring out clearly what I mean.

Dr. M. talks of "inherited characteristics." Now, I do not think of characteristics as being inherited. Character is something taken on from without, and is always post-natal. Inheritance is the result of forces operating from within, and is always pre-natal. Or, to put it in another form, character is made; inheritance is inbred. However, his expression may be admissible.

In speaking of the calf, Dr. M. says, "The germ, when implanted in the womb of that mother, had no tendency to white." It seems to me it had no other tendency, so far as the mother's influence on color extended. As will be apparent further on, Dr. M. seems to hold that the germ comes from without; when the truth of the matter is, it is the product of forces working within. *Omne vivum ex ovo*, "every animal is produced from an egg," is the law of birth laid down by Harvey, and, as I think, fully demonstrated by Agassiz. "All animals," says he, "without exception, high or low, of whatever ultimate complexity or simplicity of structure, originate from eggs, and from eggs of the same character."

It follows, then, that whatever predisposition that calf was to receive or inherit from its mother was in the egg the moment it was formed, and this was very early in the life of the mother; for Agassiz has shown that eggs are sometimes formed in the womb of the anima that is yet unborn, just as a perfect plant may be found and seen with the naked eye in the seed of the morning-glory before it is fully matured and hardened. These are his words: "Ovarian eggs may be found in animals before they have reached maturity; before they have completed their physical growth—nay, ovarian eggs have even been observed in the embryo before birth."

It will be necessary, then, to look beyond what is known as the act of generation for whatever inherited tendencies are to come from the mother. To quote again from our illustrious scientist, "Successive generations do not begin with the birth of new individuals, but with the formation of the egg from which these individuals proceed. We must look, then, upon the egg as the starting-point of the complicated structure of the adult being. It is, as it were, a sieve through which the qualities transmitted by parents to their offspring are sifted." Whatever peculiarity there may be in the new being has its foundation in the egg. Within these narrow limits are circumscribed all the conditions of change.

"The egg arises in the maternal organism without the co-operation of the other sex."

Dr. M. says, "The same germ (egg) planted in the womb of a red mother might have produced a red calf." Of course, this is a fallacy; for germs can not be "planted" in this way; but if they could, the red mother would not be able to influence the color of the calf in the least. It had already received from a white mother all the maternal bias as to color it could ever receive, when the germ was formed in the egg. It might be affected in its characteristics, or that which comes from without, by its red mother; but the inherited tendencies, or that which comes from within, had been unalterably fixed by a white mother. Of course, these might be modified by the act of generation, or the union of the male sperm with the female cell, as I shall have occasion to show further on.

To quote again from Dr. Miller: "So it seems pretty clear that the calf received inherited traits by means of the food (mark this) it received before the time it came forth as a perfect calf." Clear to whom? It seems pretty clear to me that it did not do any thing of the kind, as is no doubt apparent from what I have said above. Then Dr. M. changes his illustration, and says of a hen's egg, "When the egg was laid, if I am not mistaken, the germ was there with no characteristics except those received from the sire." Doctor, I am very much inclined to think you are seriously "mistaken," or, to speak more correctly, you have made a serious mistake, and founded your entire argument on a false basis. What about the egg of a queen that never "knew a male" bee? What kind of "characteristics," inherited tendencies, are there in that egg, and where did they come from?

Hear Agassiz again: "I can not dwell too emphatically upon the fact that the eggs are produced, and grow without any agency of the male animal." Again, Dr. M. engages in the transfer business, and thinks of this germ as being transferred to a "speckled hen," and says in that case it might have produced a speckled chicken. I can understand how he reached this conclusion, for he says, in the next sentence, "If I am correct in this, then the traits of the mother were received by the germ during the time of incubation through the nourishment contained in the egg."

The truth of the matter would seem to be that neither calf nor chicken received any "inherited traits" from the "food it consumed." Unless I misunderstand all the facts connected with the law of inheritance, traits are not transmitted in that way. You might just as well say that a potato-germ receives traits from the starch, etc., stored up in the potato. But how is it when you cut the germ out and plant it alone in the soil? Do the traits of inheritance then come from the soil? If so, how would it be if the germ were cut in four parts, as Terry says it may be, and each part were planted in a different kind of soil? Should we have four different kinds of potatoes? I think not. The truth is, the formative power is in the germ the moment it forms in the egg of the female or the sperm of the male; and if the animal is the product of the union of two such cells, sperm and germ, as most animals are, then whatever inherited tendencies as to physical organism, such as color, etc, the new-born animal may receive from mother or father were latent in these germs the moment they were formed, and no after-influence of nourishment will make one hair or feather white or black. The food or nutriment does not mold the organism, but the latent inherent polarity of the organism assimilates, molds, and directs the nutriment. Spencer says the physiological units mold the nutriment into their own type. I would say the psychological formative power takes up the nutriment and gives it form after the type of the individuals from which the cells originated.

Spencer puts it this way: "The form of each species of organism is determined by a peculiarity in the constitution of its units." "The living particles composing one of these fragments have an innate tendency to arrange themselves into the shape of the organism to which they belong." "Organic polarity" is the name he gives to this power. He then goes on to show that the power does not rest in what he calls the "*chemical units;*" neither can it rest in what he calls the *morphological units*, namely, the cells; but we must conceive it as possessed by certain intermediate units which he terms "*physiological*." Why not cut the Gordian knot by calling this a *psychological* unit, or somewhat as I have above?

It seems to me an incontrovertible fact that individualism, or the power to individualize, can not be explained from the standpoint of any thing but spirit, or a psychological unit. It is this that makes a plant a plant, a tree a tree, a horse a horse, and a man a man, and gives to each its various peculiarities. He who looks in any other direction for an explanation of the phenomena of the universe is sure to meet with final disappointment.

I admit that food and surroundings may have much to do with temperament, with shaping the acquired habits of animals and men. You take a child born of white parents, intelligent and refined, and place it in the arms of an ignorant negro nurse, and let it see no one else until it reaches manhood or womanhood, and it will talk and act in many respects like a negro, notwithstanding its inherited tendencies.

There is, however, a wide difference between acquired habits and inherited tendencies. One of them, as I have shown, is latent in the cells from which the organism springs, and the other impresses itself on the completed organism through its various susceptibilities; or, to put it differently, one is the outgrowth of environment, and the other of cell-formation.

That queens may not imbibe bad traits from their environment, I am not prepared to say; but this has nothing to do with bringing out qualities latent in the germ or sperm cell. However, as all variations tend to become hereditary, that which is imbibed in one generation may become innate and permanent in remote future generations.

Dr. M. seems to hold that the act of generation produces the germ, or, in other words, that the germ is furnished by the male. I do not so understand it, and can not see how Dr. M. can hold such a theory, knowing what he does about the economy of a bee-hive. I know this is an old theory. Agassiz says, "At one time physiologists did not doubt that the spermatic particles were actually the beginning of the new germ." But I can not see how any one acquainted with the theory of parthogenesis and the process of germ-development can entertain such an idea. Darwin says, "The belief that it is the function of the spermatozoa to communicate life to the ovule seems a strange one, seeing that the unimpregnated ovule is already alive, and generally undergoes a certain amount of independent development." Some very learned men hold, or have held, that "the life principle is in the sperm-cell;" but I think modern science has demonstrated that it is not any more than it is in the germ-cell.

After all, is not this theory the culmination of male egotism, which all down the ages has relegated the female to an inferior place? I am glad to say that the ant and the bee have placed the seal of falsehood on this relic of barbarism. The male has nothing to do with the formation of the germ, and in many cases nothing to do with its perfect development. Where the animal is the product of the union of two cells (and most animals are, as I remarked before), the union of the sperm-cell with the germ-cell imparts to it a certain *vis evolvendi*, power of development; but the germ was there with all its possibilities and maternal inherited tendencies before the union took place. As both cells enter into the composition of the new organism, it will be more or less influenced by each of them, varying according to the pre-potency of the cells. Spencer finds the necessity for this union in the fact that they had reached a state of equilibrium, whatever that may mean, and the union breaks it up and growth begins. Darwin suggests that the union is made necessary because the cells possess too little formative matter for independent development.

These will do for working explanations; but I apprehend there is a reason lying back of all of these theories, which we do not fully understand.

St. Joseph, Mo.

WHY FLOWERS ARE BEAUTIFUL.

BY THE EDITOR OF POPULAR SCIENCE NEWS.

[We take pleasure in copying the following from the *Popular Science News*, of New York, of a recent date. It contains something that bears more or less directly on our late symposium on bees and fruit, and we are sure it will be read with interest.—Ed.]

Every seed is but a crystallized memory of the past history of its kind, and every plant the realization in fact and experience of the grandest features of that memory. That a developing seed could receive a fitness in its structure for a wet or rocky soil while grown upon that which is dry and loamy seems impossible. That such fitness should be carried as a message from plants of the same species miles away, and taught to that seed before it had scarcely begun to develop in the parent flower, appears as if beyond sane belief. All this is nevertheless but a sober statement of what has been discovered by actual experiment. Two trees, shrubs, or herbs, remote from each other, can interblend their natures and combine their powers through the medium of a tiny dust-like particle of pollen. The seeds and plants derived from the union possess in large degree the fitnesses of both. United through its pollen with others having different powers and experiences, a new race is born with a double capacity of adaptation. Professor Charles Darwin experimentally proved that crosses between individuals give vigor in proportion to the variety of conditions to which the parents are subjected, and not in proportion to remoteness of kin. Foxglove (Digitalis purpurea, Lin.), Fig. 1, when crossed from plants growing near together in similar soil, shade, and surroundings, never gave as good seed as when crossed with pollen from plants of a remote neighborhood. ("Cross and Self Fertilization," page 447.) The flower-stems produced in the two cases were as 100 to 47, and the average height as 100 to 70. Plants near of kin, but raised in remote regions, when cross-fertilized with each other gave improved stock. Plants remote of kin, but grown near each other, when crossed gave inferior results. When we pass through the woods or garden and the little dust-specks cling to our garments, how many of us pause to consider that each impalpable particle we are so desirous of brushing away is a volume containing more wonderful and more accurately recorded facts than any man could write? Viewed with the microscope, traces of its beauty appear in every distinct form assumed. Each kind of plant has a form for itself, and, though borne on the passing winds miles away from the producing anthers, every tiny speck is sufficiently distinct to recognize its kind. In Fig. 2 is shown this dust from fifteen different kinds of plants, and surely no one could, after familiarity, confound them. Here is pollen from the lily (*a*), buttercup (*b*), hollyhock (*c*), enchanters' nightshade (*d*), wild-balsam apple (*e*), mountain laurel (*f*), bassella (*g*), lark pine (*h*), evening primrose (*i*), chiccory (*j*), white pine (*k*), musk plant (*l*), burr cucumber (*m*), passion flower (*n*), and scolymus (*o*). These external appearances are, in their way, remarkable, but they shed no light on a pollen grain's unfathomable potentiality.

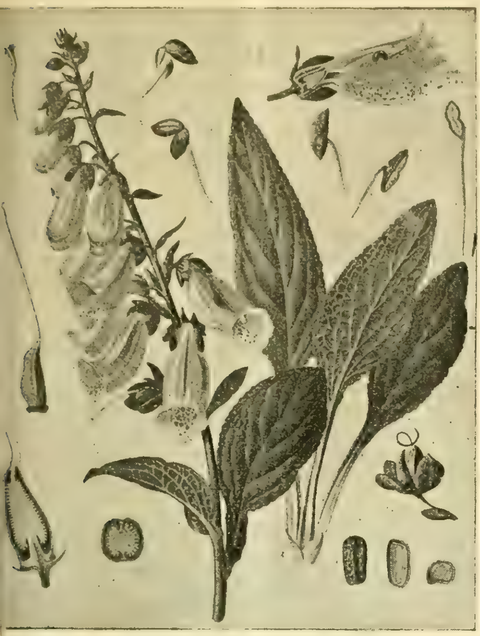


FIG. 1.

Every grain seems to be husbanded for the perpetuation of the plant, or in some indirect manner to aid that perpetuation. For a plant to squander its life force in producing a superabundance of pollen is to lessen its resisting power against adverse forces in some other direction. In the struggle for life those survived best that were able to get the largest number of healthy representatives with a minimum of such expenditure. Every plant that gained some contrivance to save its pollen from loss became the parent of more vigorous offspring. Little changes that aided but slightly were multiplied through successive generations until great changes were the result. Plants occupying positions that caused unusual strain upon their structures were those that such savings and the consequent reserve force benefited most. But this saving of pollen introduced a necessity for some contrivance to carry it in an economical manner from plant to plant. The method chosen shows the perfection of natural adjustment to a remarkable degree.

The pistils and their seed-bearing ovaries usually occupy the center, while the stamens, like a circle of sentinels, stand guard around them. This is seen in the cotton flower, Fig. 3. In this A is the pistil, B the stamens, and C the ovary. Their production of pollen is also less, since the necessity to sow every inch of the country that perchance a few grains may strike the stigma (or top of the pistil) of a kindred plant is now at an end. But how? The bringing together of both organs in a single blossom tends to self-fertilization, which has been shown to injure them. A careful examination of these flowers will reveal a most wonderful and almost numberless set of contrivances evidently intended to keep the pollen of the same blossom from reaching its stigma. These are in all degrees of perfection, from those that allow of free contact to those that exclude all possible contact. As they would all most surely perish without fertilization, and as they would slowly, but as certainly, deteriorate by self-fertilization, their winged friends come to their relief, and with the greater certainty the more enticing their forms, fragrance, and color. On any bright day of the summer months, in the forest, on the prairie, or in the garden, insects can be seen at work consummating these unions. Butterflies and moths, *bees* and humming-birds, lingering around a bed of flowers are doing more than enjoying themselves with the fragrance and sipping the honey from the nectaries. The apparently trivial act of one of these in seeking food is fraught with changes

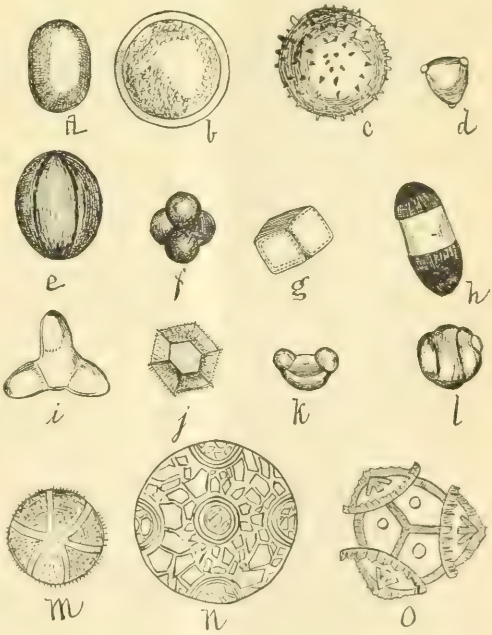


FIG. 2.

of great importance to the floral world. They carry upon their bodies supplies of pollen which are borne from plant to plant. If you watch a bee as it forces its way down the honey-bearing gland of a fleur de luce (iris), Fig. 4, you will observe how it rubs its pollen-covered back against the stigma, A, on entering, but on finishing its repast it can not return without a complete reversal of its body. This covers its back once more with pollen from B, which it carries to the next flower. In the mountain laurel (Kalmia latifolia) as it awkwardly tumbles among the bent stamens they spring up and cover it with their yellow dust. This it bears away to another plant of the same kind, where, by its movements, it is rubbed off upon the stigmas. Upon close inspection it will be found that, as a rule, the part of the insect bearing the largest pollen load is the very part it finds it necessary to turn toward the stigma in honey-bearing flowers when it seeks their sweet product. In lilacs and some others the insect first gets its head daubed with honey and then with pollen, which thus adheres, until, reaching another flower, it rubs past the stigma, where it is deposited. In many other flowers the pollen is naturally rough or sticky, and makes itself fast to whatever part of the insect presents itself. In some it is strung like beads on threads, in others it is in little packets cohering together. Sometimes it is projected with force against the insect so as to facilitate adhesion. In a few cases it is locked up in little boxes which the insect's touch opens. In some, hinges and traps are devised so that the insect can not enter the flower without throwing the pollen over itself, as the touching of one part moves as a lever the other.

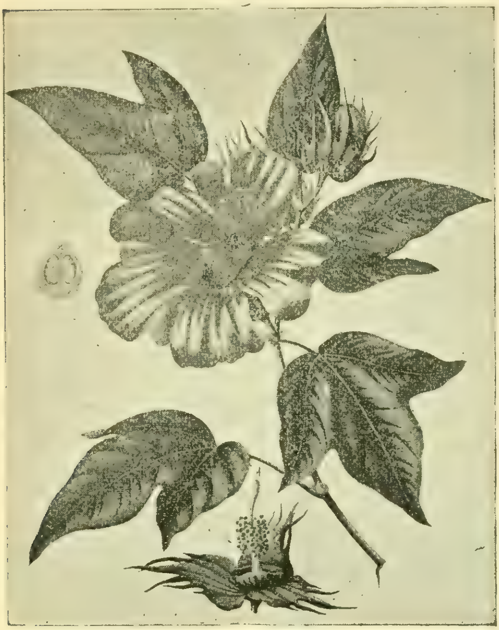


FIG. 3.

Wind-fertilized plants are frequently fertilized by insects, and from them it is believed all our pretty flowers sprang. They occasionally display beautiful colors when the vitality of a part is low, and honey and odor frequently can be found upon them. These were evidently the starting-points for selection to work upon in leading up to lilies, geraniums, and orchids. Those plants that displayed the greatest amount of a color pleasing to certain insects were most often visited and hence best fertilized. The least beautiful, if unable to continue producing pollen enough for wind fertilization, and failing to attract insects in sufficient numbers, were slowly extinguished. Every added beauty to a flower, by increasing its attractiveness, gave it the advantage in the struggle over its fellows, because it was made to produce more and better seeds. Features of color, shade, or odor pleasing to one kind of insect proved displeasing or indifferent to another, so that a large variety of forms resulted. Dull yellow flowers are evidently obnoxious to beetles, for we find that they almost entirely avoid them. Dull purple seems to be the choice color of the host of minute insects that swarm around marshes, the margins of lakes, and wet places generally. White is the favorite color of night-flying moths. Butterflies and bees choose brilliant reds, pinks, blues, and violets. By actually counting the number of insects visiting various flowers during the course of a day, it is found to be the universal rule that, where other things are equal, those blossoms that are most conspicuous are oftenest visited.

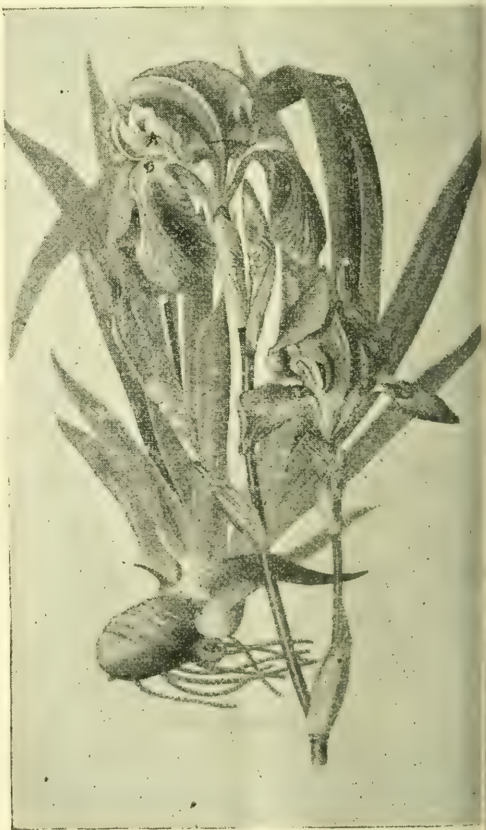


FIG. 4.

NOTES ON CALIFORNIA HONEY-PLANTS.

THEIR PECULIARITIES; AND THOSE WHICH YIELD THE MOST HONEY.

By Prof. A. J. Cook.

The California honey flora has two striking peculiarities which are of exceeding importance: It is very extensive, and nearly all the most important honey-plants, like white clover in the East, are in bloom a long time. I have kept close watch of the bees on the flowers this summer, and have been glad and surprised at the long period of work. Many plants are in bloom weeks and even months, and during all this long period they are visited daily by the bees. I believe this is why such phenomenal yields are secured as were reported to me at the last meeting of the State Association, and through me to GLEANINGS, by such men as Wilkin, Corey, Mercer, etc. Two weeks is a long flow for linden in the East, while white sage—the linden of California—is in bloom for over two months, and this range is still more broadened by the difference in time of bloom in the valleys and canyons. Most of the honey-plants consist of innumerable blossoms which occur in long racemes, or heads. The flowers commence to open below in racemes, and creep along toward the top, which they do not reach for many days in the famous white sage. In the ball (or black) sages, the same is true. The lower balls open first, and each ball has a centripetal method of blooming, which still farther prolongs the period of bloom. The citrus-fruit bloom is similarly interesting. The orange is in bloom for weeks, while the lemon bloom is scattering its attractive odor for the entire year. The periodic drouth which comes once in two or three years, and the cool winds, which have been very marked and common this spring, combine once in about three years to shut up the nectar-fountains, and destroy the honey crop and the bee-keeper's profit.

The following are the principal sources of honey, so far as I have observed this season:

White sage, *Audibertia polystachia.*
Ball (or black) sage, *Audibertia stachyoides.*
Ball (or black) sage, *Audibertia Palmeri.*
Ball (or black) sage, *Audibertia Clevelandi.*
Blue phacelia, *Phacelia tanacetifolia.*
California clover, *Hosackia glabra.*
Small blue phacelia, *Phacelia circinatax.*
Wild buckwheat, *Erigonum fasciculatum.*

This last and the sages are the important honey-plants. They yield enormously, remain in bloom a very long time, and the honey from them is unsurpassed in appearance and flavor.

Of course, the fruit-bloom is very important. Much of it comes so early that the bees are not yet strong enough to secure much surplus from this source, though fruit honey is not infrequent in the California markets, and is far more important aside from mere stimulation than is the same in the East.

The above report of flowers is not full, but contains the most important. I ought to have included a small strawberry, or blackberry-like flower, *Horkelia Californica*, which is constantly visited by bees.

HONEY-DEW A SECRETION FROM APHIDES; A REPLY BY PROF. COOK.

I was surprised to see the note in GLEANINGS for May 15th, from Germany, to the effect that bees never gather nectar from aphides, or plant-lice. I have known bees to collect the nectar extensively from aphides, especially the larch plant-louse and the elm-gall plant-louse. In several cases, when bees would be swarming on the trees, collecting this nectar, I have been able to collect enough in advance of the bees to test its quality. As I have stated in the bee-papers and in my Manual, I found the nectar, and also the honey from it, to be exceedingly pleasant. I have received twigs of pine from Oregon and Washington, covered with sugar, and on the twigs I found many dead plant-lice. I have little or no doubt that the crystals were from evaporated honey-dew. It would seem that the assertion from Germany must be an error, as we are coming to find more and more that animals and plants behave much the same in all countries, especially in the same latitude; and it is positively true that bees gather aphis honey-dew in America, and often store much honey from this source; and, more, that the honey is often light-colored and of pleasant flavor.

The other statement, regarding honey-dew from bark-lice, or coccids, is also wide of the mark — at least in America. The honey-dew is not simply sap, as the taste will quickly show; nor will pricks or wounds at this season induce a flow of sap. I have no doubt that the nectar comes from the lice. This nectar is always, so far as I have seen, dark in color and rank in quality, and never fit for table use.

THE NEW BEE-DISEASE.

The new bee-disease is becoming very serious in this region. Mr. R. B. Herron, bee-inspector for the county of San Bernardino, called on me the other day and reported that at least 5000 colonies of bees had been destroyed by this malady between Claremont and Grapeland — twenty miles east. He said he found none east of Grapeland.

I have heard of it in at least four counties. I have examined several colonies, and find in every case that not only are the mature bees dying, but the brood also. The dead brood is scattered, and does not seem at all like foul brood. The dead bees are always in shape, and never in the brown, sticky, ropy mass that we find in foul-brood cells. I am not sure that the dying-brood and mature-bee mortality necessarily go together, but I have found them so in all cases that I have examined. I think Mr. Herron, who, by the way, is a real scientist, and one whose opinion would be valuable and authoritative, finds that they do not always go together. The board of supervisors of San Bernardino Co. have instructed Mr. Herron to make a complete study of the subject. I have also purchased colonies, and shall watch the disease, and try remedies, in hopes to answer it.

You think the warm climate may favor this malady. We have never heard that the climate of France and Italy, which is similar to that of California, was deleterious to bees. In fact, we have always supposed that a warm climate was favorable to the honey-bee. Is it not probable that this is some epidemic, like "epizootic," that attacked the horses in 1872, or like the grip, which has carried off so many people in the last few years? I hope this will prove to be the case, and that we shall very soon be rid of it. Even now I see signs that it is disappearing.

Claremont, Cal., June 5, 1894. A. J. COOK.

[Prof. Cook is doubtless correct regarding the source of honey-dew; at least, his position is supported by nearly all the authorities in the past. We hope he will make further researches, as we should like to know more about this new disease.—ED.]

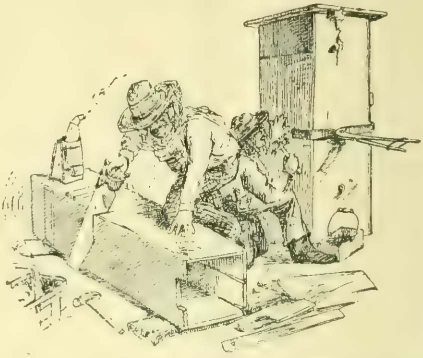
RAMBLE 111.

By Rambler.

IN for REPAIRS

IN the morning an inventory of the amount of work to do revealed that 96 of those old hives were to be nailed up, sawed off, calked up, and burlaps nailed over the tops. The teams would all be back the next afternoon. I therefore had a day and a half in which to try to do the work. The greater share of the old doors could be nailed on with but little trouble; but for any refractory hives that would not with ordinary coaxing come together, a large pair of tongs was provided. By clamping across the back of the hive, springing the handles together, and holding them in position with a ring, as shown in the cut, the edges of the hive were squeezed up into proper position to be nailed. By the time I had given the bees a dose of smoke, and banged several nails into their hives, they were somewhat surprised; and they were evidently more so when I placed the hives horizontally on the ground, rolling it over as I sawed around it. As the Harbison frames are fitted into mortises, and brace-combs are plentiful between the top-bars, there was no movement of the frames under such rough treatment.

The top usually came off in several pieces. The hives being made of extremely splitable redwood, the ground was soon well covered with the fragments. If the old adage is true, that a good workman is known by his chips, I had enough chips to claim the title.



SAWING AND NAILING HARBISON HIVES BEFORE REMOVAL.

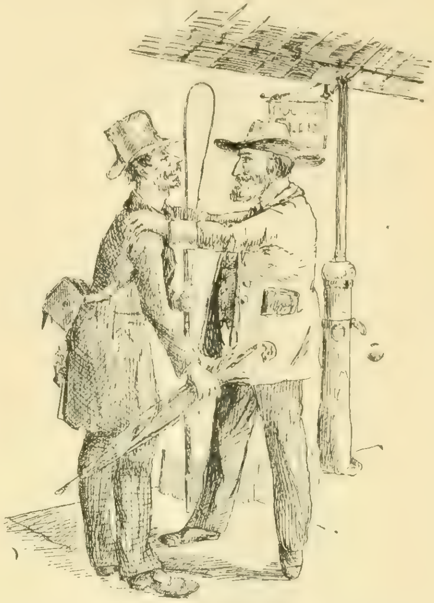
Before night I had made good progress, and was getting quite anxious to have the bees all ready to load into the wagons when they returned. Things had gone along very nicely until toward night, when the clouds gathered and it commenced to drizzle. I suppose that nail I was driving was a little wet, and the hammer ditto. A full blow at it glanced and landed full on my thumb-nail. Oh how that did hurt! how I did dance! how I did throw that hammer! and how I did kick up a row generally, there all alone, and said things I repented of afterward! That finished my nailing hives, and it was a little provoking to think it was the last hive and the last nail on the job, and then to have driven so many successfully, and hit the wrong nail at last, and that a thumb-nail, and utterly ruin it! I ate my supper with sourness of visage, with twinges of pain, and under increasing rain.

After building a big camp-fire I retired to the flat for a rest; but I had not lain long on the blankets before I made a discovery. My roof was leaking. An examination revealed the fact that the wind had carried this roof clear over, and pitched the shakes the wrong way; and, instead of shedding rain, it was an excellent conductor of rain to the interior. The flat had to be abandoned; and, making a sort of chicken-coop arrangement with some boards in front of the camp-fire, the blankets were moved in and a passably comfortable night passed, considering the painful condition of my thumb.

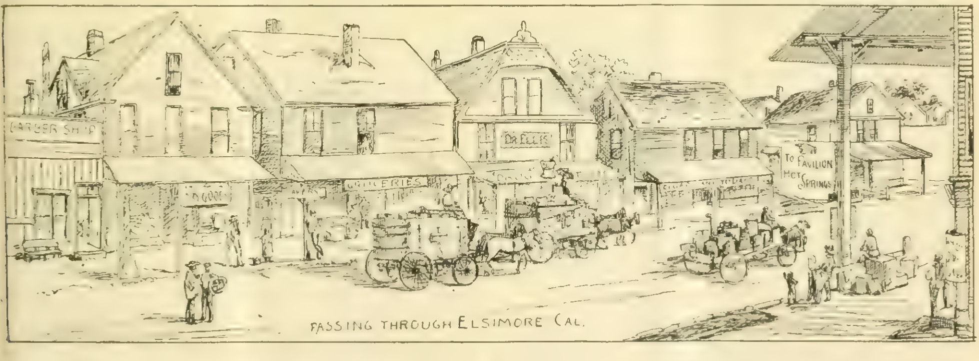
The rain had suspended business in the morning, leaving the temperature cool, and sky still lowering; and through the day there was now and then a brief shower, and two or three actual snowstorms. The snow was the kind that is done up in round packages like homeopathic pills.

In relation to my day's work, suffice it to say that the 96 colonies were all ready to load into the wagons when they arrived about noon. We were not many hours in loading, and had some hours to drive before nightfall. I was sent forward with the pony team, and was directed to push ahead, which I did until I struck Temecula, about 10 miles from the Oaks. Here I put up with my host of former acquaintance, and had a shake roof over me that night that ran the water in the right direction. A warm room also abolished shakes in the bed, of which there were several the previous night.

Owing to their heavy loads and wet roads, I distanced the other teams, and they stopped for the night in Via Cetas, five miles behind me. Sunday morning dawned bright and beautiful. I was not anxious to drive all day Sunday, and would have preferred a quiet rest. Mr Wheeler, Powell, and brother, were church-going men, and they, too, would have preferred a restful day; but the bees must be transported as rapidly as possible, and I knew they would be hustling after me. So at half-past eight I was on the road again. While I let the ponies take their own time, I enjoyed the various phases of nature that met my vision, and was soberly reflecting upon the various kinds of Sunday work done here in California. These reflections were continued for several miles, and were broken into rather suddenly by seeing a corralful of cows, and something that resembled the figure of a man walking around among them. From the appearance at a distance I thought I had discovered Darwin's "missing link," and hastened the ponies along. Yes, there was the rear prehensile appendage, protruding from beneath his blue jeans jumper. I was about to shout with exuberance when a nearer view revealed a milk-man with a one-legged milking-stool nailed to the *seat of his overalls*. If I was greatly disappointed over the missing-link problem, I was greatly amused at the movements of the stool and the man; or the man and the stool. It was a case similar to the dog. The observer didn't know whether the dog wagged the tail or the tail wagged the dog. I also learned a valuable lesson in the putting of temptation behind you. When a milking-stool is nailed to the far rear of a man, and the cow inadvertently bites her tongue while chewing her cud, and, by way of relief, puts her foot into the pail, the angry man has no available stool with which to belabor the poor critter. I again reflected that the cow and the bee, those hand-maidens of nature that make the land to flow with milk and honey, both need much work with them on Sunday.


"I SHALL ACCUSE YOU OF BEING RAMBLER."

Although I traveled leisurely I arrived in Elsinore ahead of my companions, and resolved here to wait for them, as it was getting late in the day. I didn't know but we would camp here before braving the mountainous road ahead of us.



My hour of waiting was put in by inspecting the town of Elsinore—as quiet this day as the most orthodox New England town—admiring its pretty lake, covered with thousands of mud-hens, ducks, and other waterfowl. The hot springs, for which the town is noted, are centrally located. I longed to plunge in and bathe and shave, for it had been ten days since I had enjoyed such a privilege, and I felt rough, and looked as rough as I felt. The ponies were tied near a drugstore. The proprietor soon came around, and, observing the bee-hives, commenced to talk bees. He looked me over so suspiciously that I thought he had mistaken me for a stray member of the Industrial Army. He soon arrived at a point, however, where he couldn't hold in any longer, and he exclaimed, "Well, sir, I do not believe there is any person I ever saw who will answer to the description of Rambler better than yourself. I shall charge you with it, any way."

After a laugh at his shrewdness we had a pleasant chat. I will introduce Dr. Ellis to you. He is a bee-keeper, and finds running a drugstore in connection with bees a profitable business. Our conversation was cut short by the arrival of the rest of our cavalcade. A halt was made; a consultation followed, and, though black clouds hung over the mountains, and the shadows were creeping into the canyons, George cracked his whip over his big team. We all fell into line, and moved forward on the last 12 miles of our journey. It was a tough pull up those hills, made greasy by the recent rains; but they were surmounted; and at ten o'clock, when within two miles of the prospective location, the darkness was too deep for the trail, and we were lost—didn't know which way to go; so we did the next best thing—camped then and there. A camp-fire was started; we warmed our noses and toses, for the night was chilly; ate a brief lunch, rolled ourselves in our blankets, and went to bed under the wagons. We were lulled to slumber by the murmur of the bees above us. Before it was fairly daylight, George started us all by a series of lusty crowings. It took but a short time thereafter to get the bees over the remaining two miles, properly located, and released from their imprisonment. We then had a good square meal at the hospitable cabin of the overseer of the Virginia gold-mine. George and I pushed on to Riverside with the big teams; and, ere night came, the Rambler sat in his cosy home, where it seemed necessary that he should be to repair damages to body.

An inventory revealed the fact that I had a powerful sore thumb; right hand blistered with much sawing; ankle so near broken as to make me lame; lame neck, and rheumatics under the shoulder-blade. From such a hustling time in moving bees in the future, deliver me.

CALIFORNIA ECHOES.

By Rambler.

It sounds very good to hear the hopeful predictions in relation to the prospective eastern honey-flow. We like to hear of other people's prosperity, even if we are temporarily under a cloud.

Not a few bee-keepers here complained, in the spring, that their colonies were honey-bound. It was a good bind this year. Those colonies will pull through the off year.

I quote from a reliable medical authority: "Although derived from nutritious food, glucose is in a perverted shape, and to it may be attributed the rapid spread of Bright's disease." The same authority says that all beers contain glucose, and all beer-drinkers are liable to die of said disease.

Mr. Hasty calls attention to the Britons using the clamped boards, or gang of boards, for dipping foundation. I would inform friend H. that the gang plan is an old California invention; is used now, and has been for several years on this coast, and probably prior to their use in England. It is, therefore, an American invention.

Osburn, of Cuba, gives that island a boom in the *A. B. K.;* but those moths seem to be a terror. The bee-moth is not a troublesome factor in this State, as one might suppose. Cool nights are probably detrimental to its rapid propagation. If it were a great destroyer the careless bee-keepers would own but few bees, and there would be fewer careless bee-keepers.

It is said that eastern bee-keepers come to California from reading rosy-hued descriptions of the country; and, finding the rose in this case is not without its thorn, they return with a depleted pocketbook to their eastern homes. Their journey will not have been in vain if they will take the lessons to heart, and boom their own eastern town with the vim that a Californian does his. We have heard eastern men actually denounce their own town as a place utterly unfitted for habitation. We honestly believe it to be the duty of every householder to hold the honor of his town next to that of his family, and never speak ill of it. Enthuse over it, and that is the way to boom in now and then a new inhabitant.

Foul-brood Inspector R. B. Herron, of San Bernardino Co., has found a new bee-disease near Ontario. He thinks fully 5000 colonies are affected. The larvæ have a watery and grayish appearance, and it is fully as destructive as foul brood. Mr. Herron and Prof. Cook are at work upon the case, and it is hoped that some remedy will be found to banish the disease. This malady has made its appearance in the same locality that has been afflicted with bee-paralysis, and may be akin to it. A Mr. Stevens, of Etawanda, claims to have a cure for paralysis. He cures for 10 cts. per colony, and will sell the recipe for $1000. I was intending to go over and buy it; but our jack-rabbit bounty dropped off so suddenly that it cut off my resources for ready cash. It would be worth many thousands of dollars to Southern California to get a remedy for all the diseases bees are heirs to in this section.

MISTAKES.

WHY ITALIANS IN ITALY ARE NOT HYBRIDS; THE ALPS A PERFECT BARRIER TO THE BLACK RACE.

By W. C. Frazier.

We all make them. Some of us make greater and far more reaching mistakes than others. All of us are, or should be, willing to have our mistakes corrected. Some things in bee-keeping literature seem to me to be incorrect, and to which I should be pleased to call the attention of bee-keepers. One of these is concerning Italian bees. Some two or three years since, when the subject of Italian bees was being discussed in the bee-papers, an article appeared in GLEANINGS on this subject. It was one of those convincing articles that create no dispute and require no reply. The logic seemed to be that there were black bees beyond the Alps. The Alps were no Chinese wall, therefore there were black bees in Italy; and, further, that the black blood in the Italian bee accounted for its "sporting." This article quoted Hermann as proof, and quoted him incorrectly, which changed his whole meaning.

While there may be black bees in Italy, and I know of no reason why there should not be, if some one there wished to have them sent to him, yet, at the time Hermann wrote his book, queens were not to any extent trafficked in. The proposition was, therefore, a mistake so far as black bees getting into Italy over the Alps was concerned, and the writer will have to look farther for the reason why the bees "sport," if, indeed, they do when bred in their purity. I quote the passage referred to from Hermann:

"What is not a pure Italian is not Italian at all. If she is Italian she can produce only Italians. That which is not genuine, is and remains spurious.

"Where the home of the Italian bee is, by far the greatest number of queens are dark, almost chestnut brown; and for all that, there is no difference in the color of the working bees, whether they are produced by a light or a dark colored queen. This circumstance speaks for itself that the yellow Alp bees have been through the glaciers* insurmountably separated from the black bees on this side of the Alps, and could preserve their race in original purity. Their seat is the extreme north of Italy; there they have preserved their purity. The proofs of an argument must not be fetched from the moon."

But the matter would be quite changed if such a biographer would take the trouble to make, on the spot, inquiries which would present a scientific basis. The last German place from the Julier Pass is called Stella, between which place and Poschiavo (a distance of fifty miles) there are *no bees.*

In May, and sometimes to the end of the month, the road leads from Stella by the Julier Pass (nine miles), often through snow; then Oberengadien is passed (where not a single bee exists), and then through the Bernina Pass, which demands a march in the snow of about fifteen miles, and passes are the *lowest points of passage.*

Now, I should like to see that swarm of bees that could take its wedding-flight from Stella to Poschiavo, over two mountains covered with snow (for the snow does not melt in June, and even in July and August the temperature is so low that every bee would perish), for the purpose of mating with the nearest borderers in Poschiavo. The same may be said of the entire chain of passes. On the Bernhardin, Gothard, Splugen, Lukmanier, nowhere for thirty miles round, is a bee to be found, for they can not exist where, on account of the neighhood of the glaciers, the air is so cold.

There is an end to the insect-world, and we may be sure that it has not entered into the mind of an Italian to import a hive from German Switzerland, by which German blood may be brought into Italy.

You see the Chinese-wall business was entirely misquoted, to imply there was no such barrier, though undoubtedly not intentionally.

The article from Mrs. Atchley, in June 1st GLEANINGS, concerning queens which are pure Italians, at one time, and again mating, is correct and to the point, though good men have asserted that they knew to the contrary. I have heard them assert they had purchased imported queens which gave bees ranging from pure black to pure yellow; and while they were no doubt honest in their opinion, yet this could not be. Possibly the mistake may have been in the importer. Where an importer receives a lot of queens together, and is breeding queens in the same yard, it is not impossible, nor an infrequent occurrence, for a queen from her mating-flight to enter the hive where one is being introduced, and be accepted, and, of course, supersede the queen being introduced. I, at least, have never had a queen that was once *fertilized* that was ever mated again. Breeders are making a serious mistake by trying to carry water on both shoulders by trying to keep both imported and five-banded bees in the same yard. Their cross is *no good;* that is, they are not as good as either if kept pure. The cross is a violent one (as breeders say), and does not give good results in any way. As gatherers of honey they are not equal to either;

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*"The assertion of many German bee-cultivators, that the Italian bee has German blood, as not even the Alps, like a Chinese wall, would prevent them from mixing with German bees, may sound very well and comprehensible *on paper.*"

they are not gentle, and they are not up to either in beauty.

Now, the fact is, there are a great many purchasers (I almost said breeders) of five-banded bees who never saw a *real five-banded bee;* and a queen that gives a good per cent of real five-banded bees is something very remarkable. The great majority of them give bees that are yellow three-banded, and whose bees vary in color quite a good deal. "Golden" is a correct name for them. If it is money you wish to make, and can supply a large demand, *by return mail*, you want to breed goldens, and goldens only. You can sell ten of them to one of imported stock. But there is nothing to be gained in any way by mixing them. For reasons that are satisfactory to me, I keep only imported queens, and their daughters; but I have no quarrel to pick with the man who would not have any thing but the goldens. They simply suit my climate and range the best; but do not go to mixing them.

EIGHT AND TEN FRAME HIVES.

The expression has become almost stereotyped, that eight Langstroth frames are enough for an *ordinary Italian queen.* I wish to go on record as disputing this (though I use eight-frame hives, and have 25 sound ten-frame hives which I do not use). The point is here: A colony will do about as well on eight as on ten Langstroth frames, and I don't know but they will do better, as a ten-frame colony's brood-nest is the wrong shape. But make the eight-frame hive the same capacity as the ten-frame, by adding two inches in depth to the frames, and they will rear as great a percentage of brood in it as they did when it was only the Langstroth depth. You can still further add depth by making the frame the depth of a body and super, and still get your percentage of brood. But you *can not* get the same results, as suggested in a footnote, by adding the half-depth frames (this is one of the cases where it should be, but the bees say it is not). A brood-frame this depth, nearly 14 inches, is too deep for practical work. It's liable to break down and melt, and many other mishaps; and if hives are set at the slant and angle we see most of them when going over the country, a comb of this depth would extend across about the space of three combs. It is, I say, impracticable for ordinary use. But by way of experiment, an ordinary Italian queen will use as great a per cent of comb for brood in a hive of this size as her ordinary sister will use in an eight-frame hive; but the man who would make an apiary of all this size of frames would regret it; and if the eight-frame hive is reduced in length a half, making the frames 9¼x9¼, percentage of of brood will be the same. There seems to be some trouble in getting colonies of equal strength for experimental and other purposes. This, to me, does not seem very difficult. Choose colonies in which you believe the queens to be equal. Remove the queens and let them alone two or three days. Then take the colonies to the honey-house (which has been made bee-tight); shake all the bees off the combs together, and let them cluster. After they are all clustered, have boxes prepared, and a funnel, about as you do when bees are shipped by the pound. Set one of the boxes on the scales, and set the scales at the weight of bees wanted (remembering that bees full of honey, as they will be, will not be as numerous as the scales indicate; 5 lbs. will be only 3 to 3½ lbs. of bees). By using care there should be about the same quality of bees in each box. Set the boxes away for a few hours. Divide the brood as even as possible. When evening comes, shake the bees in front of the hives containing the brood, and release the queen which you wish to occupy the hive, and you have colonies as nearly even as they can be made, and the bees will be from different queens.

Atlantic, Ia., June 11.

[It is indeed true, that the rage seems to be for yellow color, both in queens and bees. If they are yellow the customer is satisfied, no matter what their other characteristics may be. (See editorials.)

Our imported stock, while dark or leather-colored, are remarkably uniform in good temper, prolificness, and good working qualities. Here is what a subscriber thinks of them:]

THE IMPORTED ITALIAN STOCK.

GOOD WINTERING QUALITIES, ETC.

By Harry Lathrop.

Mr. Root:—In 1883 I bought an imported Italian queen of you, paying $9.00 for her in May. She was of a fine yellowish cast, very active and prolific. I Italianized two-thirds of my apiary of 100 colonies that same season; and during the cold winter that followed, that same imported blood was quieter during the winter months, and came out stronger, than any others, not coming out on the cellar bottom to die, as the others did in 1884. She proved to be very prolific, and was ready to cast a swarm about May 20. As they failed to swarm I opened the hive ten days after, and, behold, there were as many as 20 large queen-cells, all sealed up, and not an egg in the hive. I said, "Good-by, old queen;" but in looking over the hive I discovered my queen. She had grown very small, and I saw I must have accidentally hurt her in my previous overhauling of the hive. I took out one frame of brood with all the adhering bees and old queen, and put it away in another hive, and added more young bees, and brood ready to hatch. In a few days she began to lay, and the bees began to build queen-cells; and in due time a fine yellow queen hatched and mated, and went to laying with the mother-queen, and remained. I took out the young queen, and the bees built more cells, and another laying queen appeared in due time. This continued throughout the season. I have forgotten how many queens I removed from the hive. Sept. 20 I overhauled the hive for the last time, and found a beautiful yellow queen, with plenty of hatching bees, and the old queen still laying; but she was in a shriveled condition. Both would appear on the same frame together. I took a straw and directed their heads together, but they ignored each other's presence.

I find it characteristic of the imported blooded Italians for two queens to live in harmony together, and each generation to grow more yellow. In the summer of 1884, as fast as I got a load of new swarms I took them 4½ miles from home to an out-apiary. The next day after they had been carried away I noticed that, where the daughters of the imported queens stood, many bees returned with both pollen and honey, but not a bee from any other strain of Italians returned. That was convincing proof that imported blood is superior to any other, being stronger and better wingers. They had been as far, or nearly as far, as the out-apiary before being carried there. In 1886 I put on some top stories to extract from, but no queen-excluder. The old queen laid above, and the bees built cells above, and in due time a young queen hatched, went out, mated, and returned. There was an entrance in the upper story, for bees to pass through. That queen was of the imported strain. She remained in the upper story all summer, and was very prolific, while I found the old queen, which was a daughter of the imported queen, below, with any quantity of brood. That colony gave me more honey than any other two. I always keep my old queens' wings clipped, therefore I know the old from the young, even if there were no difference in their appearance. To sum up, I find that, to introduce imported blood into one's apiary once in a few years, greatly improves the bees in prolificness. They are more hardy, live longer, and, best of all, gather more honey, than any other strain of bees I ever had to do with.

Browntown, Wis.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO. N.Y.

TRANSFERRING BEES FROM BOX-HIVES.

Question.—Briefly stated, what is the best method of transferring bees from box hives?

Answer.—The majority of our most practical bee-keepers of the present time believe that what is known as the "Heddon plan" of transferring is the best of any so far given. This plan is as follows: Drive the bees from the box hive and put them into a hive furnished with frames of wired foundation, the furnished hive to be placed on the stand the colony had occupied up to the present time, while the box hive with its combs of brood and honey, with the few adhering bees, is to be placed close beside the new hive. In 21 days after all the brood shall have emerged as worker bees, drive the bees again from the box hive, driving clean this time, and, after destroying the queen with this last drive, or the one in the colony driven before, according as to which is the most valuable, unite the bees with those first driven out, thus getting the bees all on to nice straight combs, and in good shape to give a good yield of surplus honey. The combs are now taken out of the box hive, the honey extracted from them, and they are rendered into wax to help in making more comb foundation.

Now, while the above is probably the best known plan where the combs in the box hive are crooked or poor, and the season of the year that when the bees are securing honey from the field, yet if the combs in the box hives are good straight ones of the worker size of cell, or we do not have the foundation, or we wish to do this work early in the season, before the bees are getting honey from the fields so that they will not draw out the foundation readily, then, decidedly, the old plan or method given in nearly all the standard works on bee culture is the proper one to use. I never could understand the logic that melted up good straight worker combs, made the wax from them into foundation, wired the frames to keep that foundation from sagging, and then "transferred" the foundation into those wired frames with an amount of labor nearly equal to that required to transfer the original combs, all for the fun of saying that we used the Heddon plan. Straight worker comb, properly transferred into a frame, and fastened by the bees, makes just as good a frame of comb as is the one finished from foundation; and a frame properly filled with comb, without any wires in it, is just as good for all practical purposes, including shipping bees across the continent, as is the one having wire in it; while the wire is a positive nuisance if, from any reason, holes get in the combs from moldy pollen, mice, or any thing of the kind, so that we wish to "put in a patch" of worker comb to keep the bees from building in drone comb. I have shipped bees to nearly all parts of the United States and Canada on combs unwired, and have yet to hear of the first comb broken in transit. I do not wish to be considered cranky; but when a thing savors of more money out than of profits in I have always felt it a duty as well as a privilege to enter a mild protest, after which I am not to blame if any see fit to use any thing recommended which may result in a financial loss.

PREVENTION OF INCREASE.

Question.—What is the best way to keep down increase? The colonies which I now have furnish about all the honey my home trade demands. so that I do not want to increase my number of colonies further than I now have.

Answer.—The surest way is to give plenty of comb room, and then extract closely. Probably not one colony in twenty will offer to cast a swarm treated in this way. In fact, very few colonies will offer to swarm where tiered up for extracted honey, and the extracting not done till the end of the season, providing that empty comb room is given as fast as needed. But when working for comb honey the case is different, and the bees are almost sure to swarm, no matter how much section room is given, or whether these sections are filled with foundation or not. My way of keeping my apiary at the original number of colonies while working for comb honey would be to unite the colonies about three or four weeks before the honey harvest, making one colony out of two, preparing for this in advance by keeping each colony shut on only half of the combs contained in the hives I used, and then let them divide by natural swarming to the original number, keeping down all after-swarming. Or you can let them swarm without uniting before the honey harvest, and, after the honey season is over, unite back to the original number. This accomplishes the same object as the former, only it gives more mouths to feed after the honey harvest is over, without any real gain in an increased crop of honey. Dr. C. C. Miller and myself are waiting, and living in hopes, that some bright bee-keeper will yet invent something which will entirely do away with the swarming desire in bees, so that they will work all the "livelong day," and all the days of the season, with the vim manifested by a new swarm, with no such thought as swarming. What fun there would be then in having out-apiaries, and piling up the honey—yes, and home apiaries also !

VIRGIN QUEENS AND DRONE EGGS.

Question.—Does a virgin queen ever lay any but drone eggs? Are the drones from these eggs capable of fertilizing queens ?

Answer.—To the first part of the question, or, more properly, to the first question, I think it would be perfectly safe to answer no, although one or two cases have been reported looking a little as if a virgin queen might have produced a few eggs which matured into workers; but I think that this can not be other than a mistake. The second question is one which has not been settled satisfactorily to all minds. Some claim that such drones are just as good as any; and among those claiming this stand Prof. Cook, Dadant & Son, and others of nearly equal authority. On the other hand come such men as Dr. G. L. Tinker, G. W. Demaree, etc., who say that such drones are not capable of fertilizing queens. Mr. Demaree citing instances where he has had plenty of such drones flying, but no queens would get to laying till drones from a mated queen began to fly, when they became fertile and made good mothers. In my own case I have had no experience, but have always considered drones from a virgin queen, when reared in drone comb, as good as any. Such drones, when reared in worker-cells, may be virile, but I would not expect a queen to prove of great value which had mated a drone reared in a worker-cell. Mrs. Atchley wrote me, a year or two ago, that, when she moved to Bee County, she would try experiments to settle these matters, on an island not far away from Beeville, and yet far enough so there could be no possible chance of mistake. How is it, Jennie? are drones from a virgin queen as good as any?

TRADE NOTES
BY EARNEST R. ROOT.

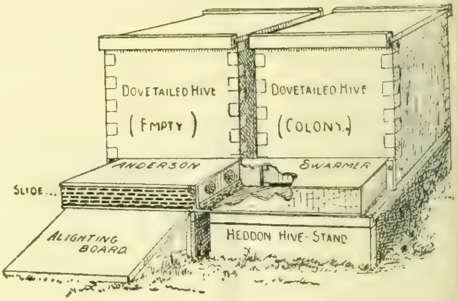
THE ANDERSON SWARM-HIVER.

DIRECTIONS FOR USING IT.

By Louis Anderson.

In the spring, or before the swarming season, prepare a hive-stand similar to the Heddon stand, large enough to hold two Dovetailed hives placed side by side, and two inches apart. Place the colony of bees upon the left end of the stand, and an empty hive upon the right (the bee-keeper is supposed to be standing in front of and facing the hives.

As the swarming season approaches (say from the first to the tenth of May), reverse the hives, placing the empty hive on the left and the colony on the right, taking care to have the front of the hives on a line with each other, and about two inches apart; then set the swarm-hiver upon the alighting-boards, and fasten with a screw through the blocks on each end of the hiver, and screw up tight. If the hives stand upon a line there will now be no outlet for the bees except through the hiver. Now close the entrance to the empty hive by placing



ANDERSON S SWARM-HIVER.

a wood strip large enough for the purpose against the entrance upon the inside of the hive, to keep the bees out until they have become accustomed to the hiver, which will be after the first day. As soon as they have become accustomed to the hiver, remove the strip and put in frames of empty comb or foundation, and the hive is ready for swarms. A small alighting-board should be placed from the entrance to the ground, for the bees to alight upon. If the hives are placed well to the front of the hive-stand when first placed, and well to the rear when reversed, the entrance to the hiver will be very near where the entrance to the colony was before the hives were changed.

OPERATION OF THE SWARM-HIVER.

When the swarm issues, the bees and queen pass out of the chamber in the hiver in front of the colony, through the wire-cloth cones, into the chamber in front of the empty hive, and the queen is there trapped. The swarm, upon discovering the absence of the queen, returns to the hive, and, finding the queen at the entrance of the hiver, which, being directly in front of and communicating with the empty hive, the bees at once enter the empty hive with the queen and commence work. The hiver may now be removed by taking out the two screws, and all queen-cells except one cut out of the parent hive.

The swarm may be strengthened, if desired, by removing the hiver in the middle of the day, when the bees are flying freely, the entrance to the hiver being in front of the swarm-hive. After the hiver is removed, the field-bees will return to the swarm-hive. If the swarm is considered to be strong enough, the hiver should be removed early in the morning, before the bees are flying.

WHAT IS CLAIMED FOR THE ANDERSON SWARM-HIVER.

1. It will hive large full swarms.
2. To see if the bees have swarmed, it is only necessary to raise the cover to the empty (or swarm) hive.
3. Either of the hives can be examined without disturbing the other.
4. If drones clog the entrance to the hiver, the perforated zinc slide may be withdrawn and the drones liberated, and the slide returned; and the drones may then be destroyed, in the evening, at the entrance of the hiver.
5. If a second swarm issues before the hiver is removed, it will be hived with the first swarm; in such case the old (or laying) queen will be accepted by both swarms, and the young queen balled and destroyed.
6. If the bees do not swarm, the colony gathers honey just as well as without the hiver. During the season of 1892 the colony that made the most comb honey in my apiary of 40 colonies had a hiver attached, but did not swarm.

Bloomsbury, N. J.

THE HOFFMAN FRAME AS VIEWED BY A CORRESPONDENT FROM AUSTRALIA.

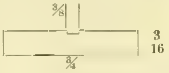
THE WHYS AND WHEREFORES EXPLAINED.

By W. S. Pender.

Judging from correspondence appearing in GLEANINGS, there seems to be some call for alterations to the Root-Hoffman frame. To my mind, the frame with the $1\frac{1}{16}$x⅝-inch top-bar and molded comb-guide is almost perfect. I can see no advantage in altering these sizes, not even to the new comb-guide that allows of the top-bar being almost ⅞ inch thick. I think the comb surface is small enough. From my experience with ⅞-inch-thick top-bars I find just as many brace-combs between the top-bars as with those reduced to ⅝ inch thick; if the bar is widened to 1⅛ inches, fewer brace-combs *may* be present. I have not tried it, but fear it will tend to increase the difficulty; for I have observed that, where a top-bar twists so as to lessen the space between the frames, a larger number of brace-combs were present. If the top-bar is made 1⅛ inches wide we increase the difficulty in uncapping the combs; and unless an alteration is made at the same time in the end-bars, we weaken the spacing part of the frame. As to burr-combs, I find a top-bar $1\frac{1}{16}$ wide by ⅝ deep absolutely proof against them. Where I have found burr-combs in using these frames, I could always trace it to other causes, such as twisting of top-bar either up, down, or to one side, or the comb has been built down over the bottom-bar of the frame above. I have *never* had a $1\frac{1}{16}$x⅝ top-bar sag through the weight of honey therein, and I have had frames of honey weighing over 10 lbs. Don't you think there is enough wood in a hive without putting more, and the comb surface small enough without making it smaller? I am of the opinion that a top-bar 1⅛x⅜ would be equally burr and brace comb proof as one of larger size; possibly it might sag when white pine is used; but could not a stronger timber be used? The ends on which the frames hang could be reduced to ¾, which would give plenty of room for the fingers when handling frames, and allow of the end-bar being made stronger where it passes the top-bar.

I notice that the frames you are now making are only $\frac{5}{16}$ thick, where the top-bar rests on the rabbets. I never saw any notice given of this alteration, and fail to see what advantage the reduced size has over the old ⅜ size. Perhaps you can inform me as to the reason for this alteration. The bottom-bar, I think, as now made, ⅜x⅜, is too thick and too narrow; the thickness destroys comb surface, and the narrowness allows of the bees pasting comb all over it, which they often continue down to the top-bars of the lower set of frames. I do not call this a burr-comb, but it is as great an evil. The only use I have seen the bees make of the comb on the narrow bottom-bars is to build some cells along one side of it, in which honey is stored, so that, if you wish to reverse this frame, the projecting cells at the bottom will touch the projecting cells on the bottom-bar of the next frame: this, therefore, interferes with the interchangeableness of the frames.

I will now suggest a bottom-bar. I have not tried it, nor have my bees, so I can not say that it will be a success; but, so far as I can see, it ought to be! Make it just like one of your all-wood Simplicity-frame top-bars with comb-guide, only turn the comb-guide uppermost. The sizes I think best are—



Let the comb-guide be barely $\frac{1}{16}$ thick. If the bees do not make a success of it as it is, the comb-guide need be put on the frame only until the comb is built, and then the true bottom put on. The thin edge of the comb-guide would allow of comb foundation passing it when stretching, and would be attached by the bees; the $\frac{1}{16}$ thickness would not affect the comb built over it being used for brood. No alteration is needed to the 8-frame hive, except that a little more room might be given for the follower; otherwise it is perfection.

Half-story frames are first class. I have always had good results from them. Certainly they are not interchangeable with full-depth frames; but they have so many advantages that I am using them largely, having closed instead of Hoffman ends.

There seems to be but little success in landing queens alive from America to Australia. Where is the trouble? Is it the candy, cages, changes of temperature, too hot a place on the steamer for the mails, or what? I received 9 queens alive from Italy, out of 10. These were six weeks on the road. They came in small boxes containing small combs of honey and bottles of water, about 200 bees being in each. They came by freight. Could not queens be sent by post with honey and water, as well as by freight? I think too much attention is paid to small cages to save postage. The candy used is not satisfactory—sometimes too soft and sometimes too dry. I can indorse what R. H. Jervis says on page 23. Even candy we make of powdered sugar and honey changes in our climate. Sometimes the same lump is too soft, and perhaps next day dry.

W. Maitland, N. S. W., Australia, May 16.

[*Depth* of top-bar is not as important as *width;* yet the former has *seemed* to have some bearing on the matter of the exclusion of burr-combs. We say "seemed," because we are not sure; but to be on the safer side we decided, early in the season, to give the full ⅜-inch depth, particularly as some experiments by Dr. Miller seemed to show more favorable results. On account of the difficulity that some seem to experience, of attaching comb foundation to the new thick tops, perhaps it would be well to consider the old top-bar ⅜ inch deep: but the width is surely better 1⅛ inches, chiefly on account of *brace*-combs; 1$\frac{1}{16}$ inches hardly bars them out. We should be pleased to hear from our subscribers.

You will notice that we have already narrowed up the projection to the frame, to give more finger-room; see page 467. We have also already modified the bottom-bar from ⅜ inch square to ¼x¾, as you will see by referring to the same page. The comb-guide for the bottom-bar might be serviceable in securing a comb attachment; but it might be too much of a good thing.

Why did we reduce the thickness of the projection? Because the construction of the Dovetail hive seemed to necessitate it. The top and bottom dovetails are $\frac{13}{16}$ inch deep. After taking out $\frac{4}{16}$ for tin rabbet, and $\frac{5}{16}$ for projection, we have just $\frac{4}{16}$ for bee-space over the frames. But, you may ask, why not have these dovetails $\frac{14}{16}$ like the rest? Because that would make the hive-body 9¾ deep, when the standard L. frame is 9⅛ inch. The reduction of the top-bar projection, from ⅜ to $\frac{5}{16}$, was made some time ago, along when the hive first came into popularity.

Recently we have not had success in mailing queens to Australia. We scarcely know where to locate the trouble. In some cases the candy was undoubtedly too soft, and in others the great change of climate from the mountains of California to the hot dry climate, was enough to kill the queen. We are sending to-day to H. L. Jones, Goodna, Queensland, Australia, two queens—one put up in our export cage, with Good candy; and another in a similar cage with the same food, but with a water-bottle—the mouth of the bottle stopped with a sponge, *a la* Hutchinson. We will repeat this experiment several times through the season, and later on will report results.—ED.]

Heads of Grain from Different Fields

THE STEVENS FRAME-SPACER.

In my article in GLEANINGS, May 15, I think perhaps there was a little too much prominence given the fact that my spacers can be attached to frames already in use. They can be attached to such frames, but it is a little difficult unless the end-bars are of the proper width to fit the spacers. The end-bars should be exactly one inch wide, otherwise they would have to be renewed. If the end-bars already in the hive are one inch wide, they are all right for my spacers; it will make no difference about the thickness. I prefer end-bars ⅜ thick. It is not necessary to change the whole frame unless it is desired to adopt a different top-bar from the one already in use. In that case an entire new frame is better; and then if my spacer is affixed it will speak for itself. While it may be used on old frames, it will work so much better on new ones made especially to fit it, I feel certain it will pay the apiarist to gradually make the change.

You say you like to have your frames stick a little so as to be always ready for moving. Theoretically the Stephens spacer will not stick; but in actual use it will to some extent

While the bees have no chance to deposit much propolis, still they will deposit some in any case—just enough to "stick a little." If you would try a few hives at the Home of the Honey-bees, I think your chief objection would soon vanish into air. The Stephens spacer strikes a happy medium between too much and too little "stick." If the bee-master wants a little propolis on his frames, he gets it—just enough to keep the frames from rattling while being moved over rough roads; and if he doesn't want any at all, he gets as little as it is possible to have where any thing touches between the frames. GEO. W. STEPHENS.

Denison, Ia., June 5.

APPLE-BLOSSOM HONEY OF GOOD FLAVOR.

I took 16 lbs. of apple-blossom honey from one hive to-day, in 1-lb. sections, and well capped over. Those of my friends who have sampled it pronounce it the most delicious and aromatic honey they ever tasted. Is that so bad for a first-year dude bee-keeper? DR. C. F. HODGE.

Clark University, Mass., May 27.

[Apple-blossom honey used to be considered rather poor quality; but it is now evident that, from the number of reports like the foregoing that have been received since that, we have misjudged it. To determine the matter beyond a doubt let us have more reports, because there was, this season, a fair crop from fruit-bloom, a large part of which was from apple.—ED.]

YELLOW SWEET CLOVERS AND OTHER CLOVERS.

I've been watching with much interest the blooming of the yellow sweet clover—*Melilotus officinalis*. It bloomed early in May, and bees have been working upon it. It appears as if this plant should be brought more into notice, as it fills the interim between fruit-bloom and white clover. There is much sweet clover of the white variety—*Melilotus alba*—in this locality, of very rank growth, but it shows no sign of blooming. The yellow sweet clover was a great favorite of D. A. Jones, who called it Bokhara clover. Judging from what I have seen of it, I'm of the opinion that it is richer in nectar than the white variety—has finer stalks than the latter named, and is a free bloomer. White clover—*Trifolium alba*—is almost a lost tribe in this vicinity, which is probably owing to the severe drouths of past years. The weather has been quite cool of late, and bees can do but little. MRS. L. HARRISON.

Peoria, Ill., May 30.

[The sweet clover in our vicinity seems to be principally of the white persuasion. It is more abundant along waste places this year than usual.—ED.]

EVERY THING RUN DRY EXCEPT THE SALOONS.

Iowa is suffering from a severe drouth. The meadows and pastures are badly dried up, including white clover; and unless basswood gives a fair yield of honey, Sam Wilson's prophecy will prove true—"Less honey in Iowa than last year." Every thing is running dry except the saloons this year in Iowa. They are running wet. One saloon in this town is reported to have taken in $1600 in ten days; another to have sold 17 kegs of beer in one day. It has been several years since they could go into an open saloon and drink, in this part of Iowa, and the novelty of the thing may create a boom. It doesn't look as if we were seeking first the kingdom of God and his righteousness very fast—going back from prohibition to the open saloon. There should be placed over the door to every saloon the motto that used to be over the door to Stormy Jordan's, in Ottumwa—"Road to Hell." O. B. BARROWS.

Marshalltown, Ia., June 8.

[We hope your good people will wake up soon. The Devil is not asleep, but many times Christian people are.—ED.]

GALVANIZED IRON FOR HONEY-UTENSILS.

As your inquiry about galvanized-iron vessels did not receive as many replies as I expected, I will throw in my mite to help settle the matter. I have used galvanized iron for honey-tanks and extractor for about 10 years, and find that, when honey is left standing in them for any length of time, that part next to the metal acquires a disagreeable taste, but it is not dangerously poisonous, as no one can eat enough of it to become poisoned. I have fed such honey to the bees, without noticeable effect. I always wax the vessels now by heating them and rubbing a piece of beeswax over them, thus giving them a very thin coat of wax, which makes them all right.

Leslie, Ga, May 26. T. W. LIVINGSTON.

ENCOURAGING FOR FLORIDA.

East Florida has not seen such fine promise for a heavy crop of honey since 1884 as now makes its bee-keepers smile. The crop from the orange-blossoms was an unusually good one, and the saw-palmetto and gallberry have not shown bloom as at present since the above date. Nearly every one owning bees here is taking honey by the ton; and the black mangrove, not yet in bloom, gives promise of being much earlier than usual, and is loaded with blossom-buds. An average colony on scales in my apiary is bringing in steadily about *eight pounds a day*. W. S. HART.

Hawks Park, Fla., May 21.

DO FIRST SWARMS EVER LEAVE BEFORE FIRST QUEEN-CELLS ARE CAPPED?

In the A B C of Bee Culture, p. 382, Note 207, Doolittle says: "I do not believe the first swarm *of the season* ever issued until the first queen-cell was capped over." My experience this season contradicts this. May 8th I examined all my 9 hives, and there were no queen-cells. Next day my first swarm of the season issued, much to my surprise. The same evening another swarm issued from the next hive, but returned, as the queen's wing was damaged, and I did not find her till too late. They issued again May 11th. The first queen-cell for the first hive was capped May 16th, and for the second hive May 15th. R. F. RITCHIE.

Rumford, Va., June 8.

[Can't we lay it down that first swarms will not *generally* come forth without a capped queen-cell in the hive? —ED.]

GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

Know ye not . . . . that ye are not your own? for ye are bought with a price.—I. COR. 6: 19, 20.

AN exchange says: "If you stop to answer every fool, you won't have much time to talk with sages."

BRO. YORK has made a visit to Dr. C. C. Miller, and will tell about it in an early issue of the *American Bee Journal.* Say, Bro. York, it is a splendid thing for editors to rub against bee-keepers. We get inspiration and helpful suggestions every time we venture out.

ONE of the oldest, most extensive, and most practical bee-keepers of the Pacific coast, Mr. R. Wilkin, of Newhall, Cal., writes: "I am trying hard to save my bees. Some are letting them starve." From various sources we learn that there will be very little California honey on the market this year, except last year's honey, and this will be scarce.

WE have just learned with surprise that the *Bee-keeper's Quarterly*, published by James Heddon, at Dowagiac, Mich., a new paper that was started last April, is ruled out of the mails as not being eligible as second-class matter. Mr. Heddon has sent out a circular letter to the subscribers of that paper, placing the responsibility for all this upon "some who recently have left no stone unturned to do up Heddon." And in connection with this he refers to the "opposition of some supply-dealers," and a certain "jealous interference." He does not say in just so many words that supply-dealers are back of it all, but the inference is that way. We are sure that no supply-dealer has had any thing to do with it whatever; certainly we have not, for we should never have supposed that his journal could have been rejected on the ground that it contained too much advertising for its publisher, or any other ground. The fact is, the Department at Washington is watching *new* publications with extraordinary vigilance, and many have been thrown out. Burton L. Sage's first paper, as legitimate a publication, it seems to us, as was ever issued, the *Bee-keeper's Enterprise*, was rejected.

THE JUNE NUMBER OF THE CANADIAN BEE JOURNAL

contains quite a picture-gallery. The first half-tone shows the apiary of the Goold, Shapley & Muir Co., which, we are told, is in Mr. Holtermann's yard. We presume it is here that all the new-fangled notions are tested and tried, and where its editor gathers some of his inspiration and material that graces the pages of his journal. Over on the next page is a half-tone portrait of Bro. York, and right beside him is—well, the associate editor of GLEANINGS. Bro. York and ourself sat in the same chair at the last meeting of the N. A. B. K. A. at Chicago, and Bro. Holtermann sees nothing inappropriate in putting our two faces on the same page, side by side. Well, we always did like to be seen in good company.

But what graces the pages of the journal more than any thing else is a couple of fine half-tones showing the editor's family. And well he may be proud of them.

CONDITIONS FAVORABLE TO THE GROWTH OF BASSWOOD-TREES

THE trees in our basswood orchard—some 4000 of them on 10 acres—are fairly loaded down with bloom—something that has not happened before in several years. The scarcity of bloom in the past years was partly owing to the fact that the ground was a little swampy, and last spring it was drained out. As it is, these trees have not done nearly as well in the same length of time as some other trees on dryer ground in the forest or in the shade of buildings. We have a few handsome basswoods on the north side of our main building; and although they are only ten years old, they are seven inches in diameter, and as high as the building. Trees planted at the same time, on the same street, in the open, are not nearly as large and thrifty. We have a few basswoods "over home," on ground well drained that were set out some four or five years ago, that are just beauties. Indeed, they are larger and more handsome than the majority of trees in the basswood orchard that have been growing for 22 years. Lack of proper shade, such as a forest affords, and, to a larger extent, lack of proper drainage, has made this great difference.

OUR BASSWOOD APIARY—WORKING UNDER DIFFICULTIES.

WE have just located an out-apiary in our basswood orchard. We selected the poorest-marked bees in our apiary, including a few hybrids, and placed them here away from our general queen-rearing yard.

By the way, we had quite a time in getting those bees down to the orchard. We were *bound* they should go last night, in spite of obstacles. The team was not available; hives were not ready, and, besides, it looked "awfully" like rain, and a regular downpour at that.

Well, we hustled the boys on the hives, got the team and wagon, and loaded the bees on, despite the fact that great big thunder-clouds just back of us threatened to give us a drenching, and despite the fact that the wagon looked as if it wouldn't hold up to even get out of the yard. We told the two yard-men that they need not go — that we and the teamster would take our chances, unload the bees if we got there, and put them where they belonged — one hive just opposite a basswood-tree. The wagon was so loaded down that we were afraid the wheels would break if we got on; so we mounted the bicycle. The roads were so muddy from a recent rain that we finally put the wheel in a barn, and ran on alongside of the team with its load of bees. It began to sprinkle. It then began to come down in big drops. It began to rain. Then it poured. We had on light calfskin shoes, Knickerbocker suit, long stockings, and white sweater. Well, to make a long story short, we arrived at the orchard without mishap, unloaded the bees, opened up the entrances, and put off for home. Of course, we were soaked through, including the poor bees, whose hives had been covered with wire-cloth screens to give them ventilation; and those borrowed stockings were a sorry sight, and the shoes full of feet and water. We did not catch cold, any of us — not even the horses; and the bees—well, they are all right.

FOUR AND FIVE BANDED ITALIANS.

Our apiarist reports that some of the colonies of these bees are very vicious—very much like the Cyprians; and Neighbor H. gives the same account of them. Still, we have in our own apiary one colony that is gentle and good workers. Mr. Vernon Burt, of Mallet Creek, has several stocks of these yellow fellows, and he reports that they are not only gentle, but among the first to go among the supers.

As to wintering qualities, there are not any of the yellow bees that stand our northern climate quite so well as the ordinary three-banded and leather-colored Italians. Mr. Burt reports that his yellowest bees were the first to die last winter, and he is very successful in wintering his bees too.

Our apiarist, Mr. Spafford, says he has noticed for the last four or five years that these extra yellow bees are the first to succumb. This may be partly due to the fact that they are bred largely in the South.

The above is given as an unprejudiced and fair statement of the yellow bees as we have found them in this locality; but why they should vary we can not imagine, unless there is a little Cyprian blood in some of them. At first we felt inclined to call a halt on the rearing of these bees, fearing that many might be disappointed on encountering their temper. We have feared all along that some breeders were a little careless in running to color rather than to bees for business. On the other hand, we have reason to believe that some are endeavoring to breed for both qualities.

PROSPECTS FOR THE HONEY-FLOW.

For the last ten days the prospects have been rather discouraging. Reports seemed to show that there was very little white clover anywhere in the country; and in our own locality scarcely any could be seen in the old pasture lots, where years before it abounded freely. It is still early to speak for outside localities; but in our own, the white clover is just beginning to make its appearance. Basswood, too, is just opening up. The conditions for a honey-flow from this source were never better. The trees are literally full of flower-buds; and where the blossoms have opened up, the bees are humming around them as in the old-fashioned way, and already are beginning to drop in at the entrances; and as early as the first break of day there is that roar that sounds sweeter to the bee-keeper than music. Reports everywhere speak well of the prospects from basswood.

ALSIKE CLOVER.

Our neighbors who have been so fortunate as to be in the vicinity of alsike are harvesting nice little crops of honey. Neighbor H., about 2 miles to the south, says his hives are full of honey. Neighbor Chase, some eight or nine miles to the southwest of us, reports something like 40 acres near his bees. He is "in clover," surely, and we shall expect that he will have a big crop of honey, especially if basswood amounts to much. Neighbor Burt, some four miles to the north of us, also reports a considerable amount of alsike in his vicinity. He was instrumental in the first place in having it introduced, and now the farmers put it in of their own accord, as they do elsewhere, because they think it pays outside of any benefit that may accrue to their bee-keeping friends. We have had no alsike accessible to our bees; and as white clover failed to show up, our colonies have been running short on stores.

SWEET CLOVER.

There is more of it in waste places than ever before. The railroad embankments and roadsides are thick with it, and neither we nor any other bee-keeper scattered it.

THE RECORD BROKEN ON BIG CROPS OF HONEY; 1250 LBS. OF HONEY FROM ONE HIVE OF BEES.

We have heard before of wonderful yields of honey in Australia. The following is an extract which we make from an article that appeared in the *Western Post*, published at Mudgee, near Sydney, Australia:

> I had five or six colonies that produced over 1000 lbs. each of honey that season, but I have only two down in my memo. book, whose extracting I put down every week after they had collected about 400

lbs. each. Since then I extracted some weeks as high as 80 and 90 lbs. from them during a very long and good season (nearly six months), and the result at the end of the season was 1250 lbs. and 1120 lbs., and I am sure two or three other colonies went very close to it. I put down in my yard-book how many tins I extract every day, and I always take a low estimate of the weight. The top-weight hive was a light hybrid, and swarmed once. The second was a pure lot, an October swarm, and I deprived them of a good many combs for queen-rearing. The honey came in so fast that I had to extract nearly all the frames in 20-frame hives to give the queens room to lay.

The last season has been very indifferent, and I got an average of only 85 lbs. per colony (spring count), the lowest for the last eight years. Since Christmas there has been very little chance of collecting honey on account of the windy, rainy, wintry weather. It appears you had a better season in your district. H. PETERSON.

Nuggetty Hill Bee-Farm, Wattle Flat, Apr. 2, 1894.

The highest reliable record for this country was between 500 and 600 lbs., by Mr. G. M. Doolittle, we believe. A bee-keeper in Texas was reported to have obtained 750 lbs.; but later inquiries seemed to show that there was some mistake; so we shall have to acknowledge that the Australians have just about doubled our record, and well they may; for they have honey-flows nearly the year round, we understand.

A BICYCLE VISIT TO THE APIARY OF MR. VERNON BURT.

OUR readers will remember Mr. Burt as one of the enterprising bee-keepers of Medina Co., and one whose apiary is almost in the shadow of the Home of the Honey-bees, being only four miles north of us.

As usual he wintered his bees successfully, and, as usual, he is going to get a good crop of honey. His neighbors have always counted him as being "lucky;" but he insists that it is not luck, but attention to business, and hard work.

When we arrived at his apiary this morning, June 26, we wondered whether we should find him there as we had always done before. Sure enough, he was at his post. Three swarms were in the air; but he was taking things very coolly, notwithstanding. "Why don't you get excited, and run about hither and yon?" we asked.

"Oh! my queens' wings are all clipped," he quietly replied.

As we neared where he was standing, the bees were boiling out of the entrance like hot shot. He stopped and chatted a little with us, and then leisurely walked into the honey-house, brought out a Peet cage, and waited for her majesty to crawl to the top of a blade of grass. Yes, there she was. He quietly put the open mouth of the cage over her, and then, after carefully pushing the slide in, leaned the cage against the entrance.

"My! the air is full of bees, and they will unite," we said.

"I don't care if they do—they will come back," he said, with quiet assurance.

"But suppose there is a virgin in one of them."

"Well, I don't suppose there is any, because I watch my colonies pretty close."

While the bees were flying up in the air, in one great black cloud, and making a roar, we sat down on the hives and chatted about the honey prospects; and then we looked into a few of the strong colonies to see what they were doing in the supers.

"But," said we, after we had looked at several where they were doing good work, "let us look into the supers of some of those yellow-banded fellows."

"Certainly; here is one."

Sure enough, they were piling in the honey, and building out comb from mere starters.

"These yellow fellows are among the first to enter the supers," said he, with a little pride as he looked at their yellow backs as they dropped in at the entrance.

By this time we began to ask where those roaring bees were.

"Oh! they are clustered over in that little tree."

And such a cluster as it was! It seemed to be about three feet across, and four or five feet deep, and so large was it that great handfuls of them would drop off on the ground, quickly to arise again to join the crowd.

"Well, now, are you going to let those fellows hang there?"

"Oh! they will go back when they get ready," said he, evidently thinking it cheaper for them to put themselves back than for him to do so, even if he could. Very soon a few of the bees began to go into one of the stands from which one swarm had come forth, and it looked a little as if they were all going into that one hive pellmell. At this Mr. Burt leisurely sat down in front of the hive and worked the Crane smoker until some of them began to scatter toward their own hives, or where they belonged. In about 20 minutes' time all three swarms had gone back to their old stands, but *not* into the *old hive*.

Mr. Burt puts a new hive with empty combs on the old stand while the bees are in the air. From the old hive he removes the supers and puts them on the new hive now on the old stand. The old hive is removed to another location. As it is, of course, greatly depleted in numbers, in a day or so he runs another swarm into it. By this means he keeps down increase, and satisfies the desire to swarm, and—piles up the honey. Last year he secured four tons, from a trifle over 100 colonies, most of which was comb honey. That is not bad, considering it was in Medina County—a county that does not boast greatly of its honey resources.

NOTES OF TRAVEL

BY A. I. ROOT.

ON THE WHEEL; A VISIT TO T. B. TERRY'S.

All through the month of May I was impatient to get over into Summit Co.; but business, muddy roads, and one thing after another, prevented until Friday, June 8, when I got things fixed around so I thought I could go; but so many things needed attention that it was after dinner before I could get off; then something more had to be seen to until I was startled to find that it lacked only *20 minutes of 3*, and I must either give it up or make 30 miles before dark; and a goodly part of the 30 miles was up and down the tremendous hills bordering on the Cuyahoga River. I laughingly told my youngest sister that I would stand in T. B. Terry's yard before the sun went down, and off I started. The new light wheel made point after point, much quicker than the heavier one of the year before; and I want to say that, if any of you ever have a chance to take a spin in the vicinity of the town of Ghent, Summit Co., you will agree with me that it is one of the most beautiful places to be found anywhere. The road descends with many curves toward the river, and soft-water springs burst forth from the hills until they form a stream large enough to run water-mills, and so we have milldam after milldam along the roadside, with the beautiful pure water making many a sparkling waterfall. I asked a gentleman by the roadside if it would make much trouble to get me a drink of water.

"Oh, no!" said he. "Come in and sit down and I will bring you some that is fresh."

As he opened the back door I caught a glimpse of potato-vines under the apple-trees. Said I:

"Why, my good friend, how did you manage to have such beautiful large potatoes right out in the open ground, without protection?"

"Oh!" said he, "I have got some even finer than these. Come this way, please."

As we turned a corner of the house he led me right through—what do you suppose? Why, just the prettiest and "busiest" little apiary, all of chaff bee-hives, you ever saw; and just beyond them were the Early Ohio potatoes in such full bloom that it looked like a flower-garden. I stopped among the bee-hives. "Why," said I, "do you keep bees too?"

"Keep bees *too?*" said he, interrogatively. "Why, this is not A. I. Root, is it?"

"Yes, that is just who it is; and I have been thinking all the while that I ought to know *you*."

"Why, to be sure, you should know me, Mr. Root. I suppose we have both grown gray somewhat since we used to know each other quite well. My name is Porter—Dr. Porter."

By the way, it has more than once occurred to me that all sorts of garden-stuff are not only more forward in a sandy and gravelly soil, but that potatoes and garden vegetables generally have a brighter and more animated look where soft-water springs abound, than in the hard clay soils such as we have around Medina.

How beautifully my wheel ran down one little decline and then up and over another little hill, curving this way and that to get around the hills, taking the rider close up to the door-step of a little vine-clad cottage, then past a schoolhouse, now close to a mill, surprising the occupants of one quiet home after another by the speed and noiseless tread of the rubber tire. When I reached Hammond's Corners I felt a good deal like having supper. There was no hotel there, but I found friends in a twinkling.

Down we went those great long twisty hilly roads, flying under the covered bridge, over the canal and along the edge of the river, until I found the proper road, winding along another mountain stream, up toward Terry's home. I was so animated with the idea of getting there before sunset that I did not venture to even look around. I found friend Terry in that same beautiful dooryard—handsomer, yes, ever so much handsomer, than it ever looked before, and I asked him a little anxiously which way I should look to catch a glimpse of the sun before it vanished. Yes, there it was through the trees, a glowing, golden orb; and I had made my 30 miles in just about an even four hours, notwithstanding the hills and the amount of visiting I did while getting my supper. I felt quite anxious to know whether Terry's wheat would really show that it was a paying operation to work the soil over so many times before it was sown, last fall. And I was glad to notice the finest piece of wheat, perhaps, I ever looked upon. His locality, however, is a very frosty one, and they had been having frosts night after night, even though it was in the month of June, and he feared his wheat had suffered somewhat in consequence. It had also fallen down so as to injure it somewhat. Notice the difference in just 30 miles. We had been picking strawberries for a week or ten days, and yet none of his were ripe. Heavy mulching, and a location north of an evergreen hedge, had likely something to do with it.

Friend Terry and his son Robert are enlarging their farming operations somewhat this year. Robert is getting to be somewhere near 21 years old, and his father is naturally quite anxious he should choose for his associates those who neither drink, smoke, nor swear. Well, somebody told me, or else I dreamed it, that the boy has concluded he would be on the safe side by choosing a nice-looking *girl* for an associate—at least, when he goes out riding in that nice new buggy. You see, a girl would be quite *sure* to be free from any of these bad habits, and I am not a bit surprised if the boy finds her quite as agreeable, as a companion, as any of the young men. And now please do not understand me as casting reflections on the young men in the vicinity of Hudson, O.

Well, the boy has a farm adjoining his father's—or at least they two, father and son, are working at it together. The old fences have been removed, and new ones—that is, where any fence was needed—have taken their place. Old trees, big stones and stumps, and all useless rubbish, have been cleared away, and the potatoes are already coming up on this neglected waste. Now, wouldn't it be funny if those potatoes this very first year should conclude to behave themselves exactly as they do over on the father's farm, and bear great crops from the word go? I went through the fruit-garden where the raspberries, blackberries, and currants have not seen a hoe nor cultivator for the past six years. Mulching with straw does it all. Friend Terry thinks it would not require over two tons of straw per acre where this amount is put on every year. And this is all there is to it. The berry-patch always looks neat and tidy, always bears a prodigious crop, no matter how dry it is, and all the owner has to do is to pick the berries, each in its season.

Next I whirled into the beautiful town of Kent, Portage Co., O. A niece of mine has recently got married. Somebody said she was a little bit inclined to be homesick since living in Kent, and I must call on her. I found her husband in one of the drygoods stores. He marched me into the best room of one of the pretty little cottages in Kent, and in a minute more I heard something like this:

"Millie, there is a man in the other room who wants to see you."

"Why, who is he, and what does he want?"

"I don't know. You will have to go in and talk with him."

"Oh bother!"

You see, the new wife was deep in the mysteries of bread-making—that is, her fingers were; but when she caught sight of the said "man," who insisted on seeing the lady of the house, she just threw up her hands and ejaculated, "Oh Uncle Amos! have you really got over here?"

I do not know whether any of the flour from her fingers got on my coat-collar or not; but there was danger of it. Perhaps I did look rather fresh and bright for an uncle toward 60 years old; for, about half a mile out of Kent, I found a pretty watering-trough, with a sort of annex at one end where the water poured over into a stone basin, where the dogs could drink with comfort. I first had a good drink of the soft water, then I washed my hands in the dog-trough, and some way or other my head got down under that cooling stream. If you have never ridden a wheel you can not imagine the delicious sensation. So you see my niece found me with my face washed and hair combed. After a little we took our wheels (this young couple are both provided with wheels) and ran around the town. You see, they did not have to hitch up nor even pay a cab-driver. I do not know how it happened, but my wheel turned up almost of itself in front of an ice-cream stand. Some beautiful strawberries out on the walk, right in front, must have had something to do with it. Millie ordered some strawberries while I was asking for ice-cream; and—did you ever try great luscious Bubach strawberries mashed up in ice-cream, when you were hot and thirsty? I began wondering who put such beautiful strawberries on the market so early in the season; and within an hour I was having an enthusiastic talk with the very man, my friend L. B. Pierce, of Tallmadge, O. No one who reads the agricultural papers of the United States needs an introduction to friend Pierce. About a year ago (see page 534, July 1, 1893) I told you about his strawberry-plantation out in the sandy woods, or on ground that had been woods but a short time before. New ground just reclaimed from the forest must have some special fitness for strawberries. It was Saturday, and friend Pierce was about as much astonished as any of us to find that there were just bushels and bushels of berries ready to pick. He had picked the afternoon before, and decided they would do nicely until Monday; but the beautiful warm weather, after such a protracted cold rainy spell, had done the business. We sampled all the new varieties, and tasted and tested, and tasted and tested, until we could not tell a good berry if we saw it. I insisted that friend Pierce should hunt up his pickers, and get those berries into market before night. But he had got his work laid out otherwise, and could not break up his plans. Perhaps he got as much money for his berries the Monday following, but I felt pretty sure he would not. Besides, some of them would be overripe. I said so much about it, that friend Pierce would have been *almost* excusable in saying he knew how to manage his own business. He did not know, however, and neither did *I*, that my own berry-patch at home was pretty much in the same predicament. Wait a little.

Then I visited my cousin, Wilbur Fenn. He has just got a new potato-planter, and I found him out in the fields, his group of bright pretty children all around him as usual. We had ever so much to talk about. The planter that he had just purchased does not miss hills. It leaves the soil fine and mellow underneath, and all around the potato, and it was just as accurate as planting by hand, or even more so. In fact, it *is* hand-planting. We went out into the field where the potatoes were coming up, and looked into the matter. A bright little girl ten years old was so much interested and animated in regard to the whole matter that I very soon discovered she did some of the dropping. She sat behind her papa, on the machine, and placed the pieces of potato in a series of little cups arranged in a circle. There were, perhaps, two dozen of them; and the dropper has only to keep a piece of potato in each of these two dozen cups as they revolve in a circle. It seems to me that the machine is a magnificent success. But something else impressed me during that visit, and it was this: There is no success with machinery, or any thing else in the line of progress and civilization, to be *compared* with the success that attends the man who has *his own children* so much interested in all his work on the farm that they find more delight in his companionship than anywhere else. You see, it was vacation time, so the children could be with their father from morning till night. The good mother told me, while we were eating dinner, that the little girl kept wishing and hoping that something would hinder the hired man from coming the day they were going to plant, so she could just ride on that machine all day and put the pieces of potato one by one into those magic cups. I began making some inquiry in regard to the family, as I looked from one bright little face to another. Cousin Fenn replied, "There are just five, and the *oldest* (the little girl who dropped the potatoes) sits there feeding the youngest some bread and milk." You see, she knew how to help her mamma by feeding the baby, just as well as she knew how to help make that complicated machine a success in planting potatoes. I told them I should miss my train unless I were in Akron by 3 o'clock; but I had to see the potatoes down cellar again. And, by the way, that big crop of Monroe Seedlings was planted the *last* week in June, instead of the first, as I have had it some of my writings. When I did get started I just made the Victor Flyer "fly," for sure; but I reached the station ten minutes too late. I did not care much, however, for I can pretty nearly keep up with a good many of our branch-railway trains. There was another train two hours later; and I decided that it would be much more to my liking to spend the two hours at Fairlawn, Summit Co. I found my young friend, C. W. Frank, enjoying himself among his crops, at high-pressure gardening. We got around to the strawberry-patch in a little while, and then I ate ever so many more. Just as I was getting ready to go over to the depot, his sister announced that supper was ready, and that I must have some "strawberries and cream." I told them that I should "get left" again, and it was Saturday night, and our boys doubtless needed me sadly to help them wind up their strawberry-picking of the day; but friend Frank said he had just been over to the station, and the agent said the train could not possibly come along sooner than 45 minutes; but just as we were half through our merriment with strawberries and cream, the whistle blew. I sprang for my wheel; but the boys had been riding, and the handle-bar was twisted. I was left again, and I want to tell you why I got left this time. The station agent has a clock worth about 50 cts., and, as a matter of course, he had to keep *sun time.* Every time a passenger wants to know when the train leaves, he ciphers the difference out between sun time and standard time, and he generally makes a mistake, just as he did in my case. Never mind. I went back and finished my strawberries and visit. Then I rode 16 miles up and down some pretty hard sand-hills a part of the way, in just 96 minutes. I found the boys had picked the berries except those up by the windmill (see picture on page 517), which needed picking more than all the rest. They picked 11½ bushels, and sold them, so they did pretty well, any way; and as they did not see any thing of the boss at the time he agreed to come, they went home tired, and concluded hat those great big berries on the clover sod, *a la* Terry, would have to stand it till Monday. So much for having a clock run by sun time.

Later.—June 23, while trying to ride uphill n the sand, I passed a buggy, and thought the aces looked familiar. It was friend Pierce and his wife. After a little talk I said:

"How much did you get for those strawberies that you left on the vines until the next Monday?"

"Oh! I got 10 cts. for those I got into the market Monday forenoon; but some of them that he boys took in Monday night brought only 6. suppose they were pretty soft in consequence of being overripe."

There you see it, friends. Had the strawberries been picked Saturday afternoon, and ushed into the market Saturday evening, they would have brought almost twice as much money as they did Monday afternoon, when they were overripe and everybody else was pushing hem into market. A little later, on the same morning, I saw a large crop of peas, just right o pick, between the rows of celery, at friend Atwood's celery farm, near Copley. He said e could not get around to it to market them hat day, because it was Saturday, and he guessed they would have to wait till Monday, ven if some of them were a little past their rime.

Moral.—When you strive with all your might, nd leave no stone unturned to get a fine crop f any thing in advance of the market, do not et your enthusiasm ooze out at the last moment, when the most critical time of all comes o turn your product into cash.

OURSELVES
AND
OUR
NEIGHBORS
BY
A. I. ROOT.

Not to be ministered unto, but to minister.—MATT. :28.

From reports that are coming continually rough the papers it would seem that there ever was a time before when honest, unselfish men were needed so much as they are needed ist now—especially men who can be intrusted o fill important offices. In fact, it would almost seem as if our republican form of government was in danger of going to pieces, even at his late day, unless men can be found who are ee from avarice and greed. We pay large salaries to the police and officers of the law. In fact, they receive so many thousands that ne would think that they ought to be satisfied; ut recent developments in New York city eem to show that large numbers, not content ith the salaries they are receiving, have been accepting bribes and blackmail to let transgressors go free. It is not alone that they were taking money that they had no right to; but while they are employed to enforce the laws, they make it their business to see that such laws are *not* enforced, and spend their time in aiding transgressors to *avoid* the law. Of course, they receive large pay for so doing. No one need tell us what the result of such work will be. Lookers-on conclude that the only thing to do is to scramble for the best, regardless of how they get it; and I am afraid there are a good many who love iniquity rather than righteousness, who are beginning to conclude there is not much to fear from the law or from the officers of the law, after all. I tell you, friends, it is a dangerous thing to let transgressors go, and *continue* to let them go, unpunished.

The mayor of the city of Chicago was recently shot down in cold blood. The man who shot him had not even been misused, so far as we can find out. The case was a very clear one. The culprit was tried, found guilty, and condemned to die. Now, I do not know why he did not die. I felt troubled and anxious when I heard that the execution was postponed. It may be that the man is *not* of sound mind. Then he is not *entirely* responsible for the act, as you and I would be; but the stories of crime which we read daily if we choose seem to indicate that there are *thousands* such as he. They are presuming on public sympathy, or something of that sort, and this incites them to push forward in this foolhardy way. I may be wrong; but I fear the *consequences* of letting such startling crimes go unpunished. It looks to me as if others of like spirit and disposition would be deterred from giving loose rein to their evil passions if this man had been promptly executed. I heard a man say that the reason why the mayor's assassin was not put to death was that foolish women sent him bouquets of flowers, and that he had so many sympathizers the governor suspended the sentence. Sympathy for a criminal is all right when shown in a proper way and to a proper extent; but any sort of sympathy that would seem to say to *this* man, and others like him, that he had done a good thing, is certainly a foolish and silly sort of sympathy.

The scenes of riot, bloodshed, and destruction of property, that are going on even while I write, are, I fear, largely the result of a foolish, misguided sympathy.

A few years ago a great complaint came up, to the effect that "farming did not pay." But this expression has gone by, and another is taking its place; if not in words, we see it in acts and in conduct. It is to the effect that *labor* does not pay—that is, ordinary labor with brain and muscle. In other words, a man can not, by honest day's work, stand any chance with the one who gets into office and accepts bribes, or gets a chance to pilfer from the government or from some railroad corporation, or to prove dishonest to his employer. There seems a pretty large and general disposition to think that strict honesty does *not* pay, or that honesty is *not* the best policy. This feeling is encouraged, very likely, because the laws are not enforced as they once were. And, finally, there has been a great longing—in fact, almost a clamoring—perhaps I should say a hungering and thirsting, for *honest men*—men who can be intrusted to any extent, with money belonging to others or to the government; and the old foolish claim, that there is not an honest man anywhere, has been repeated again and again, and expressions to the effect that "every man has his price." Where, oh! where are those who know and acknowledge that they are not their own—that they have been bought by Christ Jesus, and that they are laboring for him, and not for self—for him who uttered the words of our text—not to be ministered unto, but to minister? Oh! I am sure there are thousands who will eventually *prove* themselves to be the salt of the earth; thousands who love God and who love humanity much *more* than they love money or houses and lands; thousands who can never be tempted; in fact, who would never find any enjoyment or comfort in that which is not honestly their own, earned by square and fair honest labor. I have been hoping and praying that these thousands would come to the relief of our country's needs. I know they must be roused and stirred up, sooner or later. They will consent to hold offices—I am sure they will. Yes, we shall ultimately have professing Christians for policemen; we shall have Christian men for sheriffs, and men who will show Christianity when they enforce the law. If there are people in our land who *must be* shot down because they will not yield to law and order, for God's sake let us have the shooting done by *Christian men*.

I am coming near to fault-finding in this paper of mine, dear friends; but I must speak of one more thing that indicates danger—yes, *terrible* danger. When the sheriffs of our own State of Ohio had exhausted all their means to preserve law and order, and were unable to stop the burning of bridges right on this very railroad that runs through our home—when these scenes of burning bridges and stopping trains had gone to such an extent that the ordinary officers of the law were *unable* to restrain the rioters, the State militia were called out. First the militia from one county were called, then from another county, then another, until it looked as if all the troops of the State would be needed. Well, the law-breakers yielded, I believe, to the militia; but while the militia were standing guard, and preserving order by their presence, what did they do? Well, I do not know what they did all along the line; but in one or two places they went into the *saloons* and drank *beer*. Yes, they played games, and put up a keg of beer as a stake for the winners. Some of you will laugh at this. Some of you will say, "Why, Mr. Root, you are not posted. Your Medina County, with some other counties near you, are an exception to the rest of the State. Down here toward the Ohio River, almost everybody drinks beer. Even members of the church do when they meet a friend." Well, perhaps I am not posted in regard to the whole State of Ohio; and yet I know something about these matters, after all; and I fear that law and order will never be permanently restored until more terrible things happen than we have seen yet.

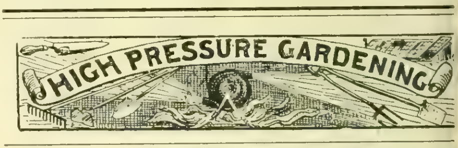
An officer of the law here in Medina County once arrested a man for disorderly conduct while drunk. As they had to ride together some distance to reach the jail, the officer got thirsty, went into a saloon and got a drink of beer, and generously (?) remembered his poor prisoner, and asked him to drink some beer too. What sort of law is that, and what sort of an officer was he who arrested a man, and put him in jail for the sin of intoxication, and then gave him a glass of intoxicants on the way to the jail? Is this kind of fashion of enforcing our laws either sense or reason?

Do some of you think that even A. I. Root himself is getting discouraged? No, I am not getting discouraged. The Bible says, "The way of the transgressor is hard;" and if we, a nation of people, become transgressors, or, at least, a great part of us become transgressors, we shall *find* our ways hard. They *ought* to be hard. It is better for us to have them hard. The wages of sin is death; and if we choose sin and selfishness, we should not be surprised when death confronts us. But there are other
Bible promises. There is one that reads, "Th
meek shall inherit the earth." The meek, th
honest, the quiet, the sober, the true, are ulti
mately to have charge; and the thing tha
troubles me just now is, that the meek are no
found coming forward and accepting their in
heritance.

Our people and our children, I fear, are get
ting the foolish and mistaken idea that th
happiest man is the one who has many to wai
upon him—the one who has lots of servants
and can sit at his ease, and put on lordly style
It is not true. It is a great blunder. Th
happiest people in this whole wide land ar
those who have learned the truth of our text–
"not to be ministered unto, but to minister."

There are several bright features to look a
in our land just now. One is, to see the num
ber of people—especially young people—wh
are enjoying themselves riding wheels. Ther
are a few who still sit in fine carriages, an
who seem inclined to look down upon th
wheelers; but they do not succeed very wel
The boy or girl who rambles at will over hi
and dale, enjoying these June days, is bright
er and happier, and more to be envied—ever s
much more—than one who rides in a carriag
The former helps himself; no sweaty overbu
dened horses are required to give him pleasur
He develops lungs and muscle and brain b
helping himself. He laughs not only at fle
horses, but is in a measure independent of rai
way trains. No matter whether the train
late, or whether he fails to be on hand at th
appointed time, he is independent. Peop
talk about the hard times; but just see ho
many people — even quite young people
find the means, in some way, to purchase
wheel! The times are not so very hard, a
the most of us can get all that is best for us
have, with a little exertion of brain and muscl
Oh I am so glad it is becoming fashionable—
least in certain lines—to cultivate muscle a
lung capacity!

Now, dear friends, believe me when I tell y
that getting ahead of your neighbors by que
tionable or dishonest means does *not* bring ha
piness. Why, such kind of pleasure or enjo
ment is an empty bubble. It is a hollow frau
The only *real* comfort or satisfaction, and t
only thing that can be really called *enjoyme*
is in earning our bread by the sweat of o
face, and rendering *unto Cæsar* the things th
are Cæsar's, and *unto God* the things that a
God's.



OUR STRAWBERRY REPORT.

If you will look back on page 517 again I c
show you where we had our biggest strawber
yield. It was just back of that piece of rye
the right of the windmill. It is the highe
ground on our ranch; and after turning und
a piece of heavy clover we planted one r
each of all our six varieties of strawberries, o
year ago last spring. They took right ho
and grew in the mellow soil among the uptur
ed clover roots, to my complete satisfacti
During the summer it was very little work
take care of them. We occasionally r
through one of those fine-toothed cultivato
and that was about all there was of it. Very f
weeds came up. And, by the way, is not tur
ing under a clover sod one of the very b
plans to get a piece of ground free from weed

There was such little hoeing done in the patch that the expense did not seem to amount to much if any thing. You will remember that this is Terry's plan of raising strawberries as well as potatoes. In the fall we took some pains to place the runners so as to have the best matted row, without having the plants too close. This plot was intended to be entirely for fruit. We did not intend to sell plants from it at all; but during the great call for Jessie and Bubach last spring, we did, for accommodation, take quite a few plants from these two varieties. But, weren't the plants just beauties? It seemed too bad to take them up, and I thought one row of Jessies was thinned out so severely that it could hardly produce any kind of crop of fruit. Along in the middle of June, however, I began to realize we were going to have something wonderful up there over the rye. Some relatives visited me, and I wanted to show them the possibilities in the way of high-pressure gardening. They were greatly delighted in going over the grounds; but when they came to this show of fruit, their admiration knew no bounds. All present confessed not only that they had never seen any thing like it, but they did not know before that such a thing was possible. We ate berries, and talked, until we could eat no more. And now I want to talk to you something about varieties:

I should be very glad indeed to be able to submit to you some specimens of those grown up by the windmill; but you will have to take my word for it.

If the Jessie always behaved as it did up there, I should almost want to place it at the head of strawberries; and with its tremendous amount of bloom, from early till late, I think I will any way put it at the head of perfect-flowering varieties for fertilizing others. By the way, friend Pierce suggested the other day that we should use the word "pollenizer" instead of "fertilizer" in referring to strawberries. What do our horticultural professors say in regard to this use of the word? The strong points of the Jessie are, that it is exceedingly early, of large size, and that its red cheeks, reminding one of a ripe peach, make it bring the very highest price. The berry is so sweet when perfectly ripe that many like it just as well (or rather better) when it is white on one side; and if we pick them at this stage they are in advance of almost every thing else except the extra earlies. The Jessie holds on well to the last. Its disadvantages are, that if the soil is not just to its liking it gets feeble, and does not bear much fruit; and its blossoms are likely to be injured by frost.

The Parker Earle has behaved poorly during the present season. It did not stand the great amount of sunshine and the extremely hot days. Every plant on our premises set a very large amount of fruit—perhaps the largest amount that I ever saw on any variety of strawberries. Only the first ripened fully matured, and those at the close of the season were deficient in size and flavor. At the Ohio Experiment Station, which I visited June 21, they told me that, if the ground were made exceedingly rich, and moisture supplied when rains were lacking, it would perfect all its fruits. That may be true. When I visited Matthew Crawford, at Cuyahoga Falls, Summit Co., O., June 23, I found his Parker Earles behaving just as mine do.

The Bubach sustains its good reputation, but it does not give us berries quite as early as the Jessie, nor quite so late, and it must be placed near a pollenizer, for it is imperfect.

The Haverland fully sustains its good reputation as a tremendous bearer. I believe the Haverland has produced more bushels of berries, for us, than any other strawberry we ever tried. Its faults are, that the berry is watery, and therefore too soft for shipment. It is also generally considered rather insipid in flavor compared to others. But with an abundance of sunshine, some of the berries have colored up and proved to be of a *very fine* flavor, where the plants do not stand too thickly. Several times, when thirsty, and it was quite a piece to the spring, I have gone to a dense bed of Haverlands and slaked my thirst with great luscious berries picked out deep down among the leaves, where they were still cool from the dews of the night. The Haverland is all right if you can hand it to your customers the same afternoon or the same forenoon that they are picked. You had better not try to keep it over night unless the nights are very cool. The Haverland gives us berries moderately early, and they hold out well until the last.

The Sterling, we have decided to drop—not because we have any thing against it, so much as that another well-known berry has pretty nearly all its good qualities. I refer to the Warfield. We once had it in our catalog, and dropped it; but this year it has given us such an abundance of beautiful dark-red berries, with its sprightly acid flavor, that I have before spoken of, that I am glad to call it back. By the way, just go out in the morning to a bed of Warfields; and as the rising sun sparkles among the dewdrops on the strawberry leaves, just watch the effect as these rays strike the rich ruby-colored fruit nestling among the green leaves. At one time in my life I was a jeweler, and I used to admire garnet clusters. Well, these Warfield strawberries are veritable clusters of garnet. Friend Terry said he did not know any thing about wine; but he felt sure he should find the juice of these well-ripened berries more luscious to him than the choicest wines that the vine ever produced. And there is not any *danger* of looking upon these berries "when they are red;" no, there is not any danger, either, in eating them to your heart's content, four or five times a day, or even more; for if any danger ever lurked there, I should not be as well and strong as I am while the boys are picking the last of our strawberries this 25th day of June.

Now, there is one more berry that we once had in our list, and dropped. It has done so grandly this season that I really feel grateful to the man who gave it to the world. It is the Edgar Queen. We had two rows of them, planted about three years ago. I dropped them, as I told you, because they were of such a bad shape; but it was in consequence of my stupidity in not providing an adequate number of pollenizing plants near by. Well, this year these same two rows have again given us bushels and bushels of tremendous great berries, and finely colored, and rather firm for handling and shipping. When I am in a hurry, and feel hungry for strawberries, I just start for the Edgar Queen, because these great whoppers, that are found in such abundance everywhere, satisfy my appetite in a very little time. Sometimes I start off with my hands full, and eat them on the way.

Now, these are the strawberries I have selected to offer you during the coming months. Oh, yes! I should not forget the Timbrell. I did not let very many plants produce berries at our place, but pronounced them very satisfactory; but at the Experiment Station, both W. J. and E. C. Green declared that people would object to them because they were fully ripe before they were fully red all over. Well, this would not be a very great objection, for our old friend the Jessie, as well as the Sharpless, is often marketed with one side almost entirely white. But the Timbrell has a queer way of showing a *mottled* white and red on one side, when the berry is not perfectly ripe. This may be a small fault, but it is a fault *after* all. The Shaffer's Colossal raspberry has had to take a back seat just because of its mottled appearance. Some of our customers were afraid our spraying solution had got on to the berries. Many of you have doubtless heard of or seen advertised the Marshall strawberry, because the plants have been held at the enormous price of $10.00 a dozen. I examined the dozen plants at full bearing, at our Experiment Station. The foliage was beautiful, and of immense luxuriance. The berries were large, of good shape, nice color, fine flavor, firm enough to handle well, and it almost seemed as if the berry were without fault. Friend Green smilingly remarked, that, if there were *enough* of them, it would be hard to find its equal. Like the beautiful Gandy, it seems to be a shy bearer. At Matthew Crawford's I found it just the same. I suggested to friend Green that we always get a large price for the Gandies.

"Yes, Mr. Root, that is true; but you sit down and figure it out, comparing your Gandies with other good varieties, and you will find that you will have to get not only twice as much per quart, but perhaps *three times*, to produce the Gandies profitably."

This is a thing we should consider, friends. Now, there are a few other varieties that promise very fairly; but I have not yet decided to add them to our list of six. One variety which I have tested, and which seems very desirable, is the Muskingum; also the Beverly and the Iowa Beauty. We may hear from these later.

The managers of our Ohio Experiment Station have tested almost if not quite every new strawberry advertised, no matter what the price. Many of them—in fact, the greater part—they find have nothing to recommend them over other well-known varieties. For instance, the Shuckless, which has been so widely advertised, is not any more shuckless than the Warfield, and ever so many other kinds. When the Warfield is well ripened, you can strip off handfuls of berries, having them leave the stem like raspberries. But few purchasers, I think, will want his berries in that way, after trying it. I tried pulling off berries from a row of Shuckless, and then from a row of Warfield; and I never should have guessed that the Shuckless berries were shuckless unless the label or somebody had called my attention to it.

STOWELL'S EVERGREEN SWEET CORN.

Since the communication on page 519 of our last issue, we have received the following:

Mr. Root:—You give an account of onion-plants in "High-pressure Gardening." I thought I was doing a big thing on sweet-potato plants. I have sold 45.000 plants at 25c per 100, on a bed 100 feet long and 6 wide. I have lots of plants yet. This bed was full of onions before sweet potatoes. I also had quite a trade on onion-plants, tomato, cabbage, and so on. Our strawberries are about all gone. We have picked 175 bushels, and one picking for Saturday yet.

The Stowell's evergreen sweet corn I got last year did boss. It all grew. Send me half a bushel more of the same kind.

J. W. NICODEMUS.

Newcomerstown, O., June 21.

Of course, the above does not settle the question; but it shows that the same lot of corn grew well in some localities.

SPECIAL NOTICES FROM BUSINESS MANAGER

HONEY WANTED.

We should like to hear from our readers near by who have choice comb or extracted honey to offer, stating how much you have, and the price. We have a fair trade in honey, and are practically sold out. We have some 200 lbs. of last year's buckwheat comb honey, which we will close out at 10c per lb.; have also some choice white-sage extracted in 60-lb. cans, 2 in a case, at 8c. We have secured no new honey yet, though we hope to have it within a week or two. We wish to hear from those having it for sale; will pay all we can afford to for choice honey, consistent with present condition of honey market.

MASON JARS.

To those of our customers who can not do better, we are prepared to furnish Mason jars at the following prices until further notice: We have pints, quarts, and half-gallons, all of which take the same size caps. Pint jars, per box of 1 doz., 60c; per box of 6 doz., $3.25; quart jars, per box of 1 doz., 65c; per box of 8 dozen, $4.50; half-gal. jars, per box of 1 doz., 85c; per box of 6 dozen, $4.75. There is probably no glass jar more universally used for canning fruits, etc., than the Mason, and many use it for selling extracted honey, because, when emptied, it is still of use.

NO. 25 JAR.

For a smaller glass jar than the Mason, one to hold a pound of honey, and self-seal, there is nothing that we find quite so good as the No. 25 jar shown in our catalog. Our sales of this jar, and the testimonials from those who have used it, confirm our opinion. It is of clear glass, with glass cover and rubber ring, secured by a nickel-plated rim which screws on securely, sealing the jar. We have them packed in two ways. For those who wish to ship or store honey in the jars, nothing is better than the partitioned case holding two dozen of the jars. This may be shipped with the jars filled or empty, without any additional packing.

No. 25 jar, 2 dozen in case, $1.40; 6 cases, $8.00; 30 cases or more, at $1.25 a case.

No. 25 jar, 1 gross in a bbl., $7.00.

Lots of 5 bbls. or more, $6.50 per bbl.

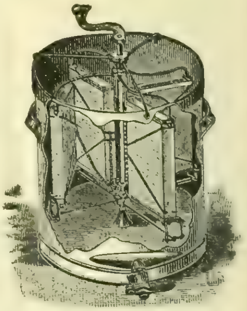
POUDER SQUARE JARS.

Walter S. Pouder, of Indianapolis, has gotten out some new square flint jars, made by natural gas, and put up 100 in a crate. They are the same shape and size as the Muth jars, without the straw hive on the side, but in its place, "Warranted Pure Honey." The 5 and 8 oz. jars require corks same size. Prices as follows:

5-oz. jars, no corks, per 100, $1.75; corks, per 100, 20c.
8-oz. " " " " " 2.40; " " " 20c.
1-lb. " " " " " 3.10; " " " 25c.

We can supply them at these prices; and in lots of 500 or more, 5 per cent discount. Shipped direct from Indianapolis, Ind., or from here.

STANLEY AUTOMATIC EXTRACTORS.

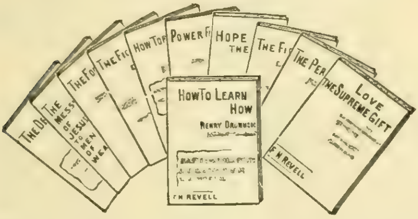


We still have left of the Stanley Automatic extractors 3 four-frame machines. We got these with other stock when we bought out E. R. Newcomb some three years ago. We had originally some 20 or more machines, and the stock is now worked down to 3 four-frame. The regular price at which these four-frame machines sold was $20, without gear. We offer these, to close out, at $10; or for $14 we will put on the bevel gear used on our Cowan machines, or one of that pattern. This machine, with gear, used to sell for $28.00. Remember, we can not duplicate these prices when these machines are sold. If you want one, order at once.

ILLUSTRATED PILGRIM'S PROGRESS.

We have secured some of a very fine English edition of Pilgrim's Progress, illustrated with over a hundred very realistic pictures. The book is 16mo, printed on very fine paper, containing 384 pages, and the illustrations are the most striking, and true to the characters represented, that we have ever seen in the most expensive editions. The binding is of cloth, richly illuminated in six colors, with title in rich goldleaf on back and side. There is no paper wasted in wide margins; in fact, there is so little trimming that some of the leaves have to be cut apart. It is a book of such quality and make-up as to easily bring $1.50 at retail a few years ago. In this day of cheap books and low prices it is necessary to close out the last of the edition away below actual value. We offer these at 50c each; by mail, 10 cents extra. We will give one free postpaid for 2 new subscriptions to GLEANINGS, with $2.00; or for 1 new subscription and 1 renewal paid in advance with $2.00, and 10c extra to cover postage on the book. Of course, every one knows what Pilgrim's Progress is, as, next to the Bible, it is the most widely read book in the English language.

A DOZEN ATTRACTIVE PAMPHLETS.



They are not only attractive, but so valuable and helpful that they should be read by every one who desires to improve his life, and live happier; and who does not have such desire? Doubtless many have read "The Greatest Thing in the World; or, Love the Supreme Gift," by Drummond; and others have heard of it. It is something that will do us good to read often. "Love is the fulfilling of the law;" and the more of it we can get into our lives, the better for the world and for us.

These little booklets are 16mo, 32 pages, with handsome light-blue parchment cover, and nice clear print. Price 10c each, or 90c per dozen, any one or assorted books, postpaid or with other goods. Publisher's price is 20c each.

1. Love, The Supreme Gift: The Greatest Thing in the World. By Prof. Henry Drummond.
2. The Perfected Life: The Greatest Need of the World. By Prof. Henry Drummond.
3. How to Learn How. Addresses by Prof. Henry Drummond, I. Dealing with Doubt. II. Preparation for Learning.
4. Power from on High: Do we need it? What is it? Can we get it? By Rev. B. Fay Mills.
5. The Message of Jesus to Men of Wealth. A Tract for the Times. By Rev. George D. Herron. Introduction by Rev. Josiah Strong, D. D.
6. The First Thing in the World; or, The Primacy of Faith. By Rev. A. J. Gordon, D. D.
7. Hope: The Last Thing in the World. By Rev. A. T. Pierson, D. D.
8. The Fight of Faith and Cost of Character. Talks to Young Men. By Rev. Theodore L. Cuyler, D. D.
9. The Four Men. The Aspect of Man from Four Standpoints. By Rev. James Stalker, D. D.
10. How to Become a Christian. Five Simple Talks. By Rev. Lyman Abbott, D. D.
11. The Dew of Thy Youth. A Message to "Endeavorers." By Rev. J. R. Miller, D. D.
12. Temptation. An Address to Young Men. By Rev. James Stalker, D. D.

GIVEN AWAY FREE.

To any one who sends us the name of a new subscriber for 6 months, with 50 cents, we will send any one of the above pamphlets, your selection, postpaid. For a new yearly subscription, with $1.00, we will send any three of the above books free, postpaid; or to any present subscriber who sends $1.00 to renew his subscription *before* the time paid for is up, or who, being in arrears, will send all back dues, and also for a year in advance, we will send free one, your choice, of these booklets.

DRUMMOND'S ADDRESSES.

Besides the booklets above we have Prof. Drummonds addresses, 6 in number, with biographical sketch, making a 16mo book of 140 pages, bound in board covers, part cloth and part paper, in two shades of blue, neatly figured, making a very handsome book. Price only 30c postpaid, or 25 if sent with other goods. Or we will give one free postpaid for a new subscription to GLEANINGS, with $1.00.

KIND WORDS FROM OUR CUSTOMERS.

The goods, ten 1½-story chaff hives, I ordered of you came all O. K., and nothing missing. I am well pleased with them. Every thing went together nicely.
S. W. BERRY.
New Guilford, O., June 7.

Any one who can not learn to handle and care for bees with your A B C of Bee Culture in his hands has not got sense enough to make a success of any thing.
SILAS G. LACKEY.
Estelle, Tex., June 11.

I have been testing one of the improved Crane smokers, and will say that thus far I am much pleased with it; in fact, the alterations made, in my opinion, double the value of the same.
Evart, Mich., May 7. B. WALKER.

Express package received. Every thing is entirely satisfactory. Thank you for such prompt attention to the order I have had my bees two seasons before, but have not been able to do any thing with them until this year.
JAMES H. MORRISON.
Niagara Falls, N. Y., June 2.

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds
W. Atlee Burpee & Co., Philadelphia, Pa.

Imported Carniolans, bred in 1893, $5 each; tested 1894 Carniolans in June, $2; bred from imported queens producing only gray bees. Untested, May, $1. Foreign orders, $6, $3, and $2. Safe arrival at any postoffice in the world.
MRS. FRANK BENTON, Charlton Heights, Md.

HURRAH! 1884 to 1894

Has shown me the best bee for our Northern climate. Give me the dark Italians for wintering, for honey, and money. Large, hardy, and industrious. Untested, dark or yellow, $1.00 each. Tested, $1.50. Send for price list. **MRS. OLIVER COLE, Sherburne, Chenango Valley Apiary. Chenango Co., N. Y.**

1 Colony Italian bees in 10-frame Langstroth hive, $4.00; tested Italian queen, 75c; bees, 70c per lb.; untested Italian queen, 60c. Address
OTTO KLEINOW, No. 118 Military Ave, Detroit, Mich.

Bees and Queens.

I am now prepared to fill all orders on short notice at the following low prices:

Untested queen	$ 75
6 untested	4 00
1 1-frame nucleus	1 00
1 3-frame nucleus	2 50
Bees by the pound	75
1 to 5 colonies	6 00

Queens wanted with nucleus, add price.
E. A. HARRIS, No. Petersburg, Renss Co., N. Y.

Tested Queens,

Raised last fall from my choice Italian stock, yellow and unsurpassed workers,

75 cts.

Ready to ship now. Hybrids, 25 cts.
J. A. GREEN, Ottawa, Ill.

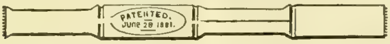
Woodcliff A No. 1.

In order to introduce my strain of beautiful yellow *Woodcliff Queens*, which are bred from an imported leather-colored Italian crossed with the best 5-banded stock I can procure by *Doolittle* method, I will sell a limited number only of untested queens at 75 cts. each. As I produce large quantities of comb honey, I breed principally for large honey-gatherers. Apiaries near Philadelphia. Address WM. A. SELSER, Wyncote, Pa.

CALIFORNIA Tested Italian queens, $1.50 each to any part of U. S. or Canada; elsewhere, $2.00. **W. A. Pryal**, North Temescal, near San Francisco, Cal.

Do Not Order

Until you have written us for prices on the "*Boss*" *One-Piece Section.*



Also D. T. Hives, Shipping-crates, and other supplies.

We have just completed a large addition to our factory, which doubles our floor-room, and therefore we are in better shape than ever to fill orders on short notice. Write for price list.

J. FORNCROOK & CO.,
Watertown, Wis., Jan. 1, 1894. 1-3-5tfd

BIG DISCOUNT on Foundation and Sections. Thin foundation, 50c per lb.; brood, 40c. No. 1 sections, $2.75 per M. Every thing cheap. Price list free.
7-17eoi *E. H. TRUMPER, BANKERS, MICH.*

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**
1-23a Ottumwa, Ia. South side.

World's Fair Medal

Awarded my *Foundation.* Send for *free samples.* Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free* Illustrated Price List of every thing needed in the apiary. **M. H. Hunt.**
Bell Branch, Mich.

TESTED ITALIAN QUEENS, $1.00 each; Select tested, $1.50; untested, 65 cts Two-frame nucleus, with tested queen, $2 00; with untested queen, $1 50. Queens ready April 1.
Stewart & Cooper, Quebeck, Tenn.

Bee-keepers' Guide.

New edition, just out. This is conceded to be the fullest, most scientific, and one of the best of our American bee-books. Every bee-keeper should have one of the late editions. Price, by mail, $1.25. Liberal discount to the trade.
A. J. COOK, Claremont, Cal.

Golden Wyandottes.

No better birds in America. Cockerel, $5.00. Trio, $7.00. Eggs, $2.00 per setting.
E. D. Keeney, Arcade, N. Y.

BBB'S! If you keep *BEES*, subscribe for the **Progressive Bee-keeper**, a journal devoted to Bees, Honey, and kindred industries. *50 cts. per year.* Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address
LEAHY MFG. CO., HIGGINSVILLE, MO.

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my *Golden Italians.* They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. *Sections, $2. per M.* Dovetailed hives way down.
CHAS. D. DUVALL, Spencerville, Md.

Look Here, Bee-keeper!

If you are in need of some bee-supplies, write for catalogue and price list. Every thing sold as cheap as the cheapest. **W. E. Smith.**
Kenton, Hardin Co., O.

Italian Bees and Queens

Ready in May. Queens, $1.00; bees by the lb., $1.00; 1-frame nucleus, $1.25; 2-frame, $2.25. Also Barred P. R. eggs for setting, 15 for $1.00.
Mrs. A. A. Simpson, Swarts, Pa.

STRONG, FULL COLONIES

of Pure Italian Bees, in Root's new Dovetailed hive, after June 1, only $4.00 each.
N. A. KNAPP, Rochester, Lorain Co., O.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

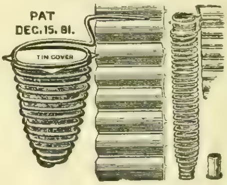
Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,
12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis.

Control Your Swarms, Requeen, &c.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. 12 Cell-protectors, 60c; 100, $3. 12 Cages, $1.00; 100, $5, by mail. Circular free. Address **N. D. WEST, Middleburgh, Scho. Co., N. Y.** Sold also by all the leading supply-dealers.

I have one of the choicest flocks of
Brown Leghorns in the State.
Keep no other kind. Eggs, 75c per 15; $1.25 per 30.
B. G. SCOTHAN, Rogersville, Mich.

I Will Exchange

For your name and address, my pamphlet "How I Produce Comb Honey," and catalog of Chaff and Dovetailed hives, T Supers, Sections, Foundation, and every thing needed in the apiary. First-class goods, and prices reasonable.

Geo. E. Hilton,
Fremont, Mich.

☞ In responding to this advertisement mention GLEANINGS.

FOLDING

DEALER (to producer): "We can not handle comb honey unless put up in cartons. We must make an attractive show of goods, which will not get broken and leak."

We print as desired. All colors in stock.

Our prices bring us the trade. Goods packed flat, and shipped everywhere. Write for samples, stating quantity wanted.

WHITNEY & CO., Leominster, Mass.

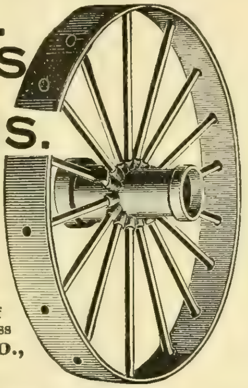
BOXES

☞In responding to this advertisement mention GLEANINGS

TESTED ITALIAN QUEENS, 75 Cts.

J. C. WHEELER, PLANO, ILL.

METAL WHEELS for your WAGONS.



Any size you want, 20 to 56 in high. Tires 1 to 8 in wide—hubs to fit any axle. **Saves Cost** many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires. Catl'g free. Address

EMPIRE MFG. CO.,
Quincy, Ill.

☞In responding to this advertisement [illegible] GLEANINGS.

WALTER S. POUDER,

162 Mass. Ave. Indianapolis, Ind.

SUPPLIES Standard Goods—Popular Prices—Catalogue Free.

"BUSY BEES"

A book telling how to manage them—10 cts. in stamps; or free to those sending names of 5 bee-keepers

---

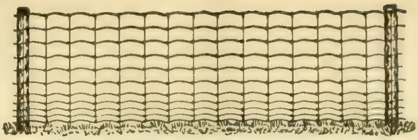
SECTIONS CHEAP!

Until sold, we will sell the sections listed below in quantities of 500 or more at $1 50 per thousand for creams, and $1.00 per thousand for No. 2. All 4¼ x 4¼ sections, open two sides.

41,000	2 inch	cream.	37,000	2 inch	No. 2.
47,000	1¾ "	"	91,000	1 15/16 "	"
116,000	1⅞ "	"	20,000	1⅞ "	"
134,000	7 to ft.	"	87,000	1 13/16 "	"
			253,000	7 to ft.	No. 2.

PAGE & KEITH, NEW LONDON, WIS.

☞In responding to this advertisement mention GLEANINGS.



"All the World Loves a Lover"

no matter how unworthy he may be, but all the world HATES a wire fence unless it is **good, AWFULLY** good. This accounts for the great popularity of the **PAGE.** Its "angelic features" are too numerous to mention. You can't afford to miss its acquaintance. Send card.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich

☞In responding to this advertisement mention GLEANINGS.

Bees and Supplies

Always on hand. Send for circular.

I. J. Stringham, 105 Park Place, N. Y.

Golden Queens

Untested 65 cts. each; 6 for $3 50; 12 for $6 50. Tested, $1 00 each. Fine prolific breeding queens, $2.50 to $4 00. To parties who have not tried my strain of Italians I will send one golden Italian queen for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

Daughters of one of ***Doolittle's*** best 5-banded breeders, mated to the choicest drones from Jennie Atchley's 5-banded strain, thereby securing a direct cross with the best 5-banded stock obtainable. If you want the best at hardpan prices, send in your orders. Untested, 60 cts.; 6 for $3.00; tested, 90c; selected extra yellow, $1.25. Safe delivery and satisfaction. Money-order office, Monongah. P. O. address, Worthington, W. Va.

L. H. ROBEY.

Golden Queens From Texas.

My bees are bred for business, beauty, and gentleness. Safe arrival and satisfaction guaranteed.

216 well-filled 1-lb. sections is what I took from one colony in '93 containing a queen bought of you.
J. A. WHITAKER, Oak Cliff, Texas.

Warranted queens, $1.00 each.

J. D. GIVENS, Box 3, Lisbon, Texas.

☞In re[illegible]ing to this advertisement mention GLEANINGS.

Mother Bees.

If you wish the best of queens, or mother bees, send me your orders. Untested queens, 3 or 5 band, 75c each; $4.25 for 6, or $8.00 per dozen. Tested 3-band queens, $1.50 each; fine 3-band breeders, thoroughly tested, the ***best,*** $5 00 each; straight 5-band breeders, faultless queens, $10.00 each. Root's goods, Dadant's foundation, and Bingham smokers.

Jennie Atchley, Beeville, Bee Co., Tex.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

FULL LINE OF

BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

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CONVENTION NOTICES.

The Quarter Centennial Meeting of the North American Bee-keepers' Association will be held at St. Joseph, Mo., Oct. 16, 17, 18, 1894. It is the first convention of the N. A. B. K. A. beyond the western bank of the Mississippi and large delegations from the great West will be present. We hope the East, the North, and the South will gather with them.

FRANK BENTON, Sec'y.
U. S. Department of Agriculture, Washington, D. C.

KIND WORDS FROM OUR CUSTOMERS.

The strawberry-plants (over four thousand) got here in good shape. The Parker Earles are "dandies." WAUZEKA MFG. CO.
Wauzeka, Wis., May 8.

The two frame Cowan is a grand success, and will extract a lot in a day. Ten-frame hives, 3 stories high, are none too large for this country.
Port Orange, Fla., May 17. J. B. CASE.

I am delighted with my hives and the lawn-mower. The latter is running now, and it does its work, I might say, perfectly. You have my thanks, and you will get my orders in bee-fixtures.
Portland, Tenn., May 30. DR. W. P. MOORE, SR.

Goods arrived O. K. The Dovetailed hives are the finest I ever saw. Persons who were watching me unpack them said, "The person who made and packed those hives surely has things down fine;" and indeed I think so too. J. W. PALMER.
Dudely, Pa., May 24.

My supplies were received in first-class shape, May 25, and I am well pleased with the same, especially the Daisy foundation-fastener. It is a daisy, sure. I would have written sooner, but I wanted to test it first. I have put in foundation enough for neighbors to more than pay for it. ISAAC DOWNS.
Fremont, O., May 31.

LIKES THE HIVES.

My goods came at last. They were delayed, I suppose, on account of the strike, but they are here, and I have the hives put together. I think they are the nicest and best hives I ever saw. They will be a good advertisement for your goods in this part of the country. I like the Hoffman frame.
Brookville, Pa., May 24. F. A. LASHORE.

KIND WORD FROM AN 82-YEAR-OLD SUBSCRIBER.

You may send the journal till I stop breathing and go home to my Savior. I am almost there, for I was born in 1812, so you see I am almost home. Thank God! I can raise bees yet, and have a nice flower-garden and a nice home to live in—a nice neat companion. I try to live for Christ, and have no will of my own. All for Christ. I am happy all day. A. GRIFFES.
Albion, Mich., May 12.

THOSE POLISHED SECTIONS A MARVEL.

Allow us to commend you on the excellent quality of goods received from you. The foundation, both brood and surplus, is perfection; and those extra polished sections are simply a marvel of what wood-working machinery can be made to accomplish. We "little ones" will have to set in and hustle, or we may be swallowed up in this avalanche of modern mode of n atness in manufacturing.
Dennison, O., May 7. CHAS. L. HILL MFG. CO.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange for Italian queens, a few pairs of Cornish Indian Games, or Golden Wyandottes. Good stock. Satisfaction guaranteed. Write. G. A. MATTESON, Cridersville, O.

WANTED.—To exchange yellow Italian queens, or nuclei of bees, for foundation or 1-lb. sections.
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

TO EXCHANGE.—Young canaries in pairs, for pure Italian queens or bees.
J. FERRIS PATTON, Lawrenceburg, Ind.

WANTED.—To exchange golden queens for raspberry, blackberry, and strawberry plants.
J. F. MICHAEL, German, Darke Co., O.

WANTED.—To exchange thoroughbred poultry for Gregg raspberry, and strawberry plants, good incubator, or offers.
J. C. PROVINS, Masontown, Pa.

SPECIAL OFFER FOR THE NEXT 60 DAYS.

Untested 5-banded queens, 50 cts. each; six, $3.00; warranted, each, 60 cts.; six, $3.50; tested, 75 cts.
Reference, A. I. Root.

Leininger Bros., Ft. Jennings, O.

☞In responding to this advertisement mention GLEANINGS.

Warranted Queens, 75c.

Five-band strain, bred for *business*, six for $3.25; dozen for $6.00. See former *ads.*, and send for circular. Safe arrival and satisfaction *guaranteed.* **J. B. CASE, Port Orange, Fla.**

FOR SALE. A Barnes foot-power buzz-saw; latest improved.
M. S. JACKSON,
63 Sixth Avenue, Pittsburg, Pa.

WANTED.—Extracted honey (well-ripened clover, mangrove, white sage, raspberry, orange, or basswood) in exchange for untested Carniolan queens from choice imported mothers whose own workers are all gray, *the gentlest bees known*, and good gatherers. Splendid queens bred this year in full colonies, $10 per dozen.
FRANK BENTON, Charlton Heights, Md.

Woodcliff A No. 1.

In order to introduce my strain of beautiful yellow ***Woodcliff Queens***, which are bred from an imported leather-colored Italian crossed with the best 5-banded stock I can procure by ***Doolittle*** method, I will sell ***guafanteed*** purely mated untested queens at 75 cts. each. As I produce large quantities of comb honey, I breed principally for large honey-gatherers. Apiaries near Philadelphia. Address

WM. A. SELSER, Wyncote, Pa.

☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

BOSTON.—*Honey.*—Our market on extracted, 5@7, with fair demand and light supply. Comb, 12@15c, light demand and fair supply. Beeswax, scarce, and wanted at 27c.
E. E. BLAKE & CO.,
July 10. Boston, Mass.

CHICAGO. *Honey.*—Demand for honey at this season of the year restricted. We look for an active demand for new comb honey that is of good quality and put up in desirable packages. We shall hold our first receipts at 16c per lb., unless otherwise instructed. Extracted honey selling, depending upon quality, at 5@6 per lb. Beeswax, 25.
S. T. FISH & CO.,
July 7. 189 South Water St., Chicago, Ill.

ST. LOUIS.—*Honey.*—Market practically unchanged. Inquiries are more numerous, but active demand light. Prime beeswax, 26c.
D. G. TUTT GROCER CO.,
July 7. St. Louis, Mo.

CHICAGO.—*Honey.*—We are not getting any of the crop of honey as yet, but it would sell at 15@16c for choice white comb. Extracted, quiet at 5@6c. Beeswax, 25c.
R. A BURNETT & CO.,
July 7. 163 So. Water St., Chicago, Ill.

CLEVELAND.—*Honey.*—Honey is moving slowly. No. 1 white, 12½@13c; No. 2 white, 10c. Beeswax, 25c.
WILLIAMS BROS.,
July 6. 80 & 82 Broadway, Cleveland, O.

MILWAUKEE.—*Honey.*—The demand for honey here is not very urgent, and the old crop is nearly out of sight, and market will be ready for the new shipments, and we hope demand will improve. The present market will warrant the following quotations: Choice white 1-lb. sections, in cases, 13@14c; fair, 12@12½c; dark, entirely nominal. Choice extracted, in bbls. and kegs, white, 7@7½c; fair, 6@6½c; dark, 5@6c. Beeswax, 23@25c.
July 6. A. V. BISHOP & CO.,
Milwaukee, Wis.

KANSAS CITY.—*Honey.*—The old crop of comb honey of 93 is about all cleaned up; a few cases of new comb on the market, and selling at 16c; the demand for extracted very light. Beeswax, 20@23.
CLEMONS, MASON & CO.,
July 9. Kansas City, Mo.

ALBANY.—*Honey.*—We have received no new honey yet, but several producers have advised us of their intentions to forward some in a few days. No price established yet. Indications are not very favorable for a large yield of clover honey in New York State at present. CHAS. MCCULLOCH,
July 9. Albany, N. Y.

DETROIT.—*Honey.*—No new honey in the market yet, and but a little of last year's crop. Choice new comb honey would find a quick sale at 14c. Extracted, 7@8c. Beeswax more plentiful, and prices lower, now quoted at 25 and 26c. M. H. HUNT,
July 7. Bell Branch, Mich.

BUFFALO.—*Honey.*—Very little doing in honey in our market at present. Moderate amount of old on hand, which is moving off very slowly at irregular prices. Fancy, 12@13; choice, 10@11; common, 8@9; to clean up some it has to be sold for less.
BATTERSON & CO.,
July 7. Buffalo, N. Y.

KANSAS CITY.—*Honey.*—Demand is slow for all grades and kinds of honey. A few cases of new received. The range of prices is 4½@6½c for extracted. Fancy white, 1-lb. comb, 15@16c; amber, 12@13; dark, 10. Beeswax, 22. HAMBLIN & BEARSS,
July 9. Kansas City, Mo.

30 tested Italian queens, the very best 3 and 5 banded, at 75c each, by return mail.
C. H. STEWART, Sparta, Tenn.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
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Thanking you for the many past favors received by the late firm, we hope to be favored with a liberal share of your patronage in the future.

All orders and inquiries by mail or otherwise will receive prompt attention. Very respectfully,
Boston, April 2, 1894. ROBINSON & GRAY.

5-Banded Golden Italian Queens.

Untested, each, 75c; 6 for $4.25. Best only. Try them and be pleased.
CHAS. H THIES, Steeleville, Illinois.

By Return Mail. Italian queens from one of Doolittle's very best breeders—yellow to tip. Bees most excellent workers. Untested, 55c; 6 for $3.00; 12 for $5.50. Tested, $1.00. Mismated, 35c; 3 for $1.00. Safe delivery and satisfaction guaranteed.
H. G. QUIRIN, Bellevue, Ohio.

50c. Untested queens from imported Italian mother. W. C. FRAZIER, Atlantic, Iowa.

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Square Glass Honey-Jars,
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P. S.—Send 10-ct stamp for "Practical Hints to Bee-keepers"

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge. After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Extra choice young mismated queens from five-banded breeder, 25 cts. each. Part of them nearly pure. L. H ROBEY,
Worthington, Marion Co., W. Va.

Black queens for sale at 20c each, or 6 for $1.00.
WM. HEYWOOD, Stafford, Genesee Co., N. Y.

I have about 60 black and hybrid queens that I will sell at 15 or 20 cts., according to queens. All good laying queens. Safe arrival guaranteed.
H. C. MELLON, Dixon, Illinois.

Mismated daughters of imported Carniolans; fine queens bred this season in full colonies, 40 cts. each, 3 for $1. A few hybrids—fine young queens—25 cts. each. Safe delivery by return mail.
MRS. FRANK BENTON, Charlton Heights, Md.

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Honey to secure the completion of unfinshed sections can be made very profitable if rightly managed during the hot weather of July and August. In "ADVANCED BEE CULTURE" may be found complete instructions regarding the selection and preparation of colonies, preparation of the feed, manipulation necessary to secure the rapid capping of the combs, time for removing the honey, and how to manage if a few sections in a case are not quite complete; in short, all of the "kinks" that have been learned from years of experience and the "feeding back" of tons of honey.

Price of the book, 50 cts.; the Review one year, and the book, for $1 25; or the Review the remainder of the year, and the book, for only 75 cts. Stamps taken, either U. S. or Canadian.

Queens nice tested ones of this year's rearing I can furnish at $1.00 each, or with the Review one year, for $1 75. Untested queens at 75 cts. each, or one with the Review one year for $1.50. Write for prices on larger quantities.

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• • • Drones Yellow all over.

Queen mothers from an entirely different strain from the drones, hence a direct cross. None but selected drones allowed to fly from the most desirable colonies. I am 4 or 5 miles from any other bees, therefore I can practically control the mating of my queens. Nine years as a queen specialist, always taking care to secure direct crosses, has convinced me that the golden Italians have no superiors. Queens sent by return mail if requested. Safe arrival guaranteed, and every queen warranted in every respect. Price 75c each; $8.00 per doz.

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We can furnish you with *hardy*, northern-bred Gray Carniolan and Golden Italian Queens, by *return mail.*

Untested Queens, each	$ .75
Tested " "	1.50

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That will just "roll" in the honey, try **Moore's strain of Italians,** the result of 15 years' careful breeding.

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I bought queens of you in 1891, and they have shown themselves to be of the best for honey-gathering.

Warranted queens, 80c each; 3 for $2.00. Tested queens, $1.00 each. Safe arrival and satisfaction guaranteed.

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J. P. MOORE, Morgan, Pendleton Co., Ky.

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Business Queens.

On account of a few hybrid drones that may be flying in the air this year I will sell my all-golden-to-tip queens, untested, unwarranted, but am satisfied 90 per cent are purely mated and will produce 4 and 5 banded bees, at 50 cts. apiece. Order some, test them, and be convinced.

WM. A. SELSER, Wyncote, Pa.

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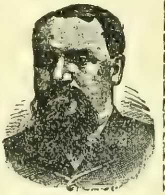

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT.

$1.00 PER YEAR. MEDINA OHIO

Vol. XXII. JULY 15, 1894. No. 14.

STRAY STRAWS

FROM DR. C. C. MILLER.

TWO MILLION colonies of bees in Germany, about one-third with movable combs.

WATCHING BEES working on linden, I found not one in 50 with pollen. Is that usual?

I HOPE Prof. Cook and those Germans will come to an agreement about honey-dew.

DON'T FORGET that, independently of any thing else, we want thick top-bars to make white sections.

BEE-KEEPERS' TOBACCO is one of the specialties advertised in German papers. I can't find it in A. I. Root's catalog.

SIR BENJAMIN WARD RICHARDSON finds, after long experiment and practice, that 64° Fahr. is the best temperature in which to conduct mental labor.

THAT GOLDEN-QUEEN fad is hard to resist, the bees look so handsome. I've some beauties of Doolittle's stock, but he says they're no better than three-banders.

"WHAT PROPORTION of bees less than 16 days old should be in a colony during clover?" is a query in *A. B. J.* Only four venture to give a guess, and they say 20, 50, and 75 per cent.

AN INTERNATIONAL FRAME "that would be accepted by all nations" is one of the things talked about in the foreign bee-journals. I'm afraid we'll never reach even a national one in this country.

POLLEN-CLOGGED COMBS in queenless colonies show how far wrong is the notion that queenless bees carry in no pollen. It also shows how large an amount of pollen must be used in a normal colony.

THAT FRENCHMAN at Hamilton, Ill., is still waiting for an answer to his conundrum, "Why should a larger hive be used for extracted than for comb honey?" Can none of us eight-framers answer him?

FOR CHAPPED LIPS, dissolve beeswax in a small quantity of sweet oil by heating carefully; apply the salve two or three times a day, and avoid wetting the lips as much as possible.—*Herald and Presbyter.*

REEPEN objects to my plan of trying heredity from nurse-bees by raising queens from the same stock in a cross and a gentle colony, that the influence of the drones would interfere. You're right, mein Herr.

THAT PICNIC on clover that I told about in last Straws lasted about while I was telling of it. Now, July, empty combs in all my hives make me anxiously wonder what price Congress will make on September sugar.

IN AN ARTICLE about bees, in *Harper's Young People*, the writer gravely recommends the use of camphor to keep out moths which sneak into hives, "just as they sneak into seal-skin cloaks and woolen garments."

THAT OTHER TAYLOR, who runs the private experiment station in Minnesota, says, in *A. B. J.*, "What we need is not so much an improved strain of golden Italian bees as an improved "strain" of practical bee-keepers. [That's very true.—ED.]

THAT STUBBORN CASE, in which the queen stayed 28 days in the upper story without laying, continued 18 days longer, with the queen having full run of the hive, but not an egg, when I found her on the ground, as if having swarmed, and I killed her.

THAT VINDICTIVE GERMAN, Reepen, in *Centralblatt*, replying to the charge of cruelty in making little children learn such a hard language as the German, says all the stutterers in Germany became so by the continued vain endeavor to sound the English "th."

MY JOKES need labeling sometimes. Speaking of old bee-books, I said none were published in America before 1492. Now comes a grave statement in a foreign bee-journal, that the first bee-book in America was printed in 1492. 1492 isn't so familiar a date across the water as here.

A BEE-SHIRT is a desideratum. Light woolen is fine to work in, but bees sting it. There must be no wool, no starch, no dark color, and no soft or fuzzy surface. Linen would chill. Some hard preparation of cotton might do. Here's a field for you, brother Calvert.

CHARLES DADANT, in *Revue*, advises against giving a queen, or brood from which to raise a queen, to a colony of laying workers, without first giving a fair proportion of sealed worker brood. *After* this hatches, these young bees will be ready to receive or raise a queen.

REMOVING WAX or bee-glue from clothes. "Chill the wax that is in the clothes, in *ice-cold* water; and while the clothes are in the *very cold* water, the wax or glue will crumble out clean if the wax spots are rubbed or washed while in the water."—*W. McEvoy*, in *A. B. J.*

SCHACHINGER says his investigations show that, in a good harvest, for every pound stored by a colony of 20,000 bees, a colony of 30,000 will store 3 lbs.; one of 40,000, 8 lbs.; and one of 50,000, 12 lbs. According to that, one should aim to have strong colonies rather than many.

A SAMPLE of the hardened, impregnated paper queen-excluder is received from Robert Nitzsche, Germany. It looks nice, lacks the sharp edge of the zinc, and, although one would suppose the bees would gnaw it, he says it has remained perfect after a test of four years. But it costs twice as much as zinc.

WATER FOR BEES. Take a five-gallon crock, or other vessel; lay a piece of burlap over it; take two or three pieces of *rotten* wood, 6 to 12 inches longer than the depth of the vessel, and push the burlap to the bottom with them; fill up with water and throw in a handful of salt; and if started in time your bees will not bother the horse-trough.

GENERAL CORRESPONDENCE

GETTING THE HONEY CROP WITH 8 OR 10 FRAMES.

THE ADVANTAGES OF A LARGER HIVE.

By C. A. Hatch.

In GLEANINGS for June 15 the secretary of our State Association, Harry Lathrop, gives his reason for preferring 8 frames instead of 10, because he thinks he can gather the crop of his field in that hive better than otherwise. Singular as it may appear, I know of no better reason why he should use the ten-frame. He closes by asking what I would think of that phase of the question.

If I did not know Mr. Lathrop, and also know that he is one of the best honey-producers of our State, I would hardly spend time to write another article on the hive question; but when one who makes a success of keeping bees comes to a different conclusion than another equally successful, it either shows that he is wrong in some of his conclusions or that the skill of both is what brings success, rather than the hive they use. I am inclined to the opinion that a good bee-master would succeed with either 8 or 10 frame hives, other things being equal. But the amount of honey secured, and the amount of labor expended to secure it, after all, is the point.

The product of a given field is such an uncertain quantity that what would require 100 colonies to gather this year might let 50 starve; so the only true way is for one to get as good a field as he can, and then manage to have as large a working force in the field as he can manage.

Bro. L. says, "Why is it not as well to work 150 colonies in 8 frames as to work 125 in 1 frames?" Which will swarm the most, Bro L.? Does not every swarm make work? Is it not true, that the longer you can keep a colony from swarming, up to, say, the beginning o basswood bloom, the larger swarms you get and the more honey, of course? for, more bee more workers, more workers more honey. think no one will dispute the fact that th small hive will swarm first, and keep at i longest.

So far as caring for an eight or ten fram hive, I could never discover any practical difference. If a little ingenuity is used, there i but little lifting of full hives to do; so, in adding 25 colonies to your apiary you have adde one-sixth to the labor of swarming-time, putting on sections, etc., while you hav not increased your working force at all.

Let us suppose a case. Suppose your fiel will afford pasturage for 100 colonies in 1 frame hives. In the spring you set them ou and all are strong enough to occupy the whol hive, without any division-board or tucking u with the quilt. All there will be to do to thei until about June 10, in our latitude, will be t clip the queens' and see that there is plenty honey in the hive. At the date named abov swarming will begin; each hive will have frames full of brood, and plenty of young bee But how would it be with eight-frame hives You start with 100 in the same condition, an at swarming time you will have, instead of frames full of brood to the hive, only six frame or a loss of 25 per cent, or 200 frames on th whole lot, which will require 33 eight-fram hives to make equal. But, you say, when th eight-frame hive needs more room, put anoth story on top, and have a two-story broo nest. Does not that take time and work? an can you get the queen to go upstairs over to bar, bee-space, and bottom-bar, and yet kee brood in both hives? If you can, you a one trick ahead of me, for I can not. It is no trick to get her to go up; but how is it about coming down? How much real gain have you made by having the lower hive deserted?

I think one of the greatest failures of the Heddon hive is this very trouble. In theory, the small brood-nest to begin with was nice; but after a three-years' trial the bees continued to say, "No, we will not," and I had to give them up.

If the above has not convinced Bro. Lathrop, let him get 50 ten-frame hives, and set them alongside of 50 of his eight-frame hives, and see which takes the most time to do all necessary work, and which will give most honey.

Now for your footnote argument. The first paragraph, and part of the second, about lifting hives and enlarging by tiering up, have been answered; but as to cost, that is a small item when we think that a hive will last a lifetime with proper care; and suppose they do cost 10 cts. more each; if they are better, is not the money well spent? Economy is not in saving, but in using well what we have.

The next paragraph, about a ten-frame being too small for a large colony and too large for a small one, I do not agree with. We are talking about the best hive for the brood-nest, and, of course, a large colony must have surplus room according to its strength; and if my queens keep eight frames full of brood all the time, I call them "boomers." Wouldn't you?

You say bees will fill out sections better directly over the brood than anywhere else, and that Italians are apt to store honey in the two outside frames. Admitted. But will not the same management that gets brood on the two outside frames in the eight-frame work as well in the ten-frame? Are not bees apt to fill, or leave it if already full, one comb on each side, just as much in an eight-frame as in a ten-frame? But if left to themselves to build their brood-nest, just as the mother-bee wants it, will you not have eight frames in one hive against six in the other? and is there not one-third more brood surface to put sections *directly* over than in the other?

I do not know whether I get your real meaning in the next to the last point you make, about the eight-frame being nearer to the standard. If you mean by "standard" that more of them are in use, or that you sell more of them, that proves nothing; because the average man would take your word for it, and not try to prove for himself whether you were right or not. On this basis, the Simplicity was at one time the standard, and hence, by this line of argument, the best. This you will hardly admit, I think. I believe this question is one of economy of management rather more than increase of production.

Ithaca, Wis., June 25.

[You are quite right, friend H., in the opinion that a good bee-master would succeed with either eight or ten-frame hives, other things being equal; but *if* there is a difference, that same bee-master would succeed better with one than with the other, and it is important to know which is better.

In your supposed case of 100 colonies, you assume that there would be eight frames of brood in a ten-frame hive, and six in the eight. While we do not mean to dispute this, we simply ask, Is it true? We have just run across a number of our colonies in eight-frame hives, especially at our out-yard, among the basswoods, that have brood in all of the eight frames. Now, we used to run an apiary of ten-frame hives, and, so far as we can remember, we do not think we then secured more brood in the ten-frame than we now do in the eight-frame hive. But there may be a difference in localities, and a difference in bees, and perhaps a difference in men in the way they look at the brood-nest.

Now in regard to getting the queens to go upstairs. We have experienced no difficulty if we drew one frame of brood out of the lower story and put it above with other combs. We have just been handling, personally, the colonies in our basswood yards. Some of them have brood in both stories of the eight-frame hive—yes, as many as 12 to 15 in some cases.

Yes, we think a ten-frame hive is too small for a large colony, and too large for a small one; but it is seldom that we have a colony that needs more than 16 frames of capacity room. During a large part of the year, it may be easily accommodated in one story of eight frames. In most of the apiaries we have visited, where ten-frame hives were used, we found a two-inch division-board used, not only *during* the honey season, but before and after it. The two-inch division-board is put in so the bees wouldn't put any surplus below, for eight frames are enough for brood; and, as you say, when they are all full of brood the colony is a boomer. Now, then, when the honey comes in, it has got to go above—that is, the surplus goes where we want it. Toward fall we find in these same apiaries the colonies still on eight frames, and sometimes less, to conserve the heat—that is, to give the bees just room enough without being crowded; and in winter it is certainly an advantage to have the brood-nest no larger than is absolutely necessary. Our colonies can always be accommodated in winter on eight frames, and sometimes on six. This was true when we were using exclusively ten-frame hives in our apiary; and even now, when we are using the eight-frame exclusively, the same condition seems to exist. Yes, the bees do fill out sections better directly over the brood; but when we used ten-frame hives and ten-frame supers, at least one outside row of sections was behind the other rows; and before we adopted the eight-frame hive we put in the division-boards and secured better results in filling out sections, using eight-frame supers. The point is here: The ten-frame hives, so far as we have observed in the apiaries we have visited, are apt to have two-inch division-boards in a greater part of the year. Here is a waste in having the hive too large, and in the cost of the extra thick division-board to reduce it down again to eight frames. *If* this capacity is large enough, why not, when we are starting anew, use the smaller hive?

You will remember that we once used and strenuously recommended the ten-frame hive; but the pressure seemed to be so great that we adopted the eight-frame. Formerly, with us, the ten-frame seemed to be the standard, and now the eight-frame is; and why? We will admit that one of the reasons is because we recommended it, and that the majority do as we indicate; but in turn we are influenced by the preferences of some of the best and most successful bee-keepers for the eight-frame, and we decided it was better to follow their advice.

Now, we are not prejudiced in favor of one hive over the other. We desire to be on the right side, or, more strictly speaking, to recommend that hive which will suit best the needs of the mass of bee-keepers with whom we deal. It is a fact, and we presume it is true that our customers will follow largely our recommendation; and the reponsibility is a great one, and we therefore desire to view the matter as candidly and fairly as possible.—ED.]

EGGS.

DO BEES TRANSPORT THEM? AN INTERESTING CASE.

By J. A. Golden.

I notice in GLEANINGS, page 506, that Willie Atchley makes an attack on Rambler as well as on all who advocate the theory that bees do carry eggs and deposit them in cells for the purpose of rearing queens; and in his argument, with his close observation, he gives quite a convincing proof that his theory can not be successfully disputed; but after he has heard from quite a number of close observers of bees, who have observed their peculiar freaks, he perhaps may come to the conclusion that he is wrong in speaking with such strong language as he does when he says that bees *never* carry eggs from one cell to another, nor to any part of the hive, nor anywhere else, for that matter, and deposit, in view of rearing a queen; and to satisfy Willie that he makes a mistate we will call his attention to this one case:

Three years ago I had two colonies of black bees. I was introducing Italian queens, having at the same time a queenless Italian colony badly infested with fertile workers, which killed two queens as soon as they liberated them from the cages. So I concluded I would cage one of the black queens taken from one that I was introducing an Italian queen to, and hang it in the hive two or three days, and then see if I could introduce her to the fertile-worker colony. Having made a hole in the wire cloth over the cage, so a worker-bee could get in, I suspended the cage between two frames, and covered the hive up. Some ten or twelve days afterward Mr. C. C. Eddy called to see me, and we went into the bee-house. The thought suddenly occurred to me in regard to the queen that was suspended in the fertile-worker colony, having entirely forgotten the matter. We then opened the hive, and, what do you suppose we found? Well, Willie, we found two patches of brood and eggs around that queen-cage, nearly as large as one's hand, and two queen-cells nearly ready to cap over; and, on examination, lots of eggs were observed around the inside of the cage. The queen was three years old, and was killed, and queen-cells destroyed, and an Italian queen introduced and accepted. In due time the brood hatched that was thus reared, and were the regular native (or German) bee, the same as the queen. Then when the eggs from the queen introduced hatched, they proved to be satisfactorily three-banded.

Now, Willie Atchley, please tell us where those eggs came from, if the bees did not carry them from the caged queen and place them in those cells, as above stated. J. A. GOLDEN.

Reinersville, O., June 25.

[If we remember correctly, there have been reports in GLEANINGS, saying that bees do actually move eggs from one part of the hive to another, and a large amount of circumstantial evidence to the effect that bees at times, when queenless, and reduced to the last extremity, will steal an egg from another colony, with which to rear a queen; but we do not remember that we have ever had a report before, where a queen deposited eggs anywhere else than in cells of comb. We have sometimes seen eggs drop from a queen in the height of her laying season, as she walked over the combs; we have also seen bees pick them up; but what they did with them, we do not know. We shall be glad to receive reports from others, especially on this point as to whether bees will at times take eggs and put them into queen-cells. The theory that Willie Atchley advances may account for some of the phenomena noticed in the hive; but we do not believe we can safely say yet that bees do not actually take the eggs and deposit them in cells under circumstances, at times, that may seem extraordinary.—ED.]

THE TARIFF.

WHY THERE SHOULD BE A PROTECTIVE DUTY ON HONEY; A STRONG ARTICLE.

By H. F. Moore.

I can not forbear replying to the free-trad doctrine advanced by friend W. G. Hewes, o page 505, of June 15th issue of GLEANINGS. have a most friendly feeling toward all reader of GLEANINGS, and I can not bear to think suc ideas should go unchallenged to your 50,00 readers, many of whom may have no opportunity to investigate the matter for themselves.

Friend Hewes takes issue with Mr. Elwoo in his attack on the proposed reduction of dut on honey by the Wilson bill. He says the California prices are governed entirely by the goo or poor crop in California. As a matter of fact doesn't Mr. Hewes know that carloads an carloads of California honey are shipped t Chicago, Indianapolis, New York, and othe cities east? that the price the first carloa brings furnishes a standard of valuation for th next ten carloads furnished? Does frien Hewes know that tons of cheap honey are use in Mansfield, Cleveland, and Cincinnati, O., i cake-baking? in all these cities in the manufacture of tobacco? and in Chicago in makin bedbug poison? It is well known to all well-informed people that the larger part of th value of any given article is composed of wage of the labor that produced it. This is no les true of honey than any other product of the United States. This being true, what protection have we against the products of nations where labor receives one-half to two-thirds the wages paid for similar work in the United States? I say we have no protection but the tariff of 20 cents which the McKinley law levies on every gallon of honey brought over the border. Friend Hewes laughs at the idea that there is lots of honey waiting to be dumped upon our helpless bee-keepers. But this is nevertheless a fact: Cuba can produce 4 gallons of honey at the cost of one gallon in the United States, both by reason of more favorable climate, and cheap and even slave labor; and even now, with 20 cts. a gallon duty, she sends shiploads of honey to our shores. In proof of these observations, let me remind you that, in the fiscal year ending June 30. 1894, 97,706.29 gallons of honey were imported into the United States. This honey was valued at $43,590.85, or 45 cts. a gallon; add to this a duty of 20 cts. per gallon, and you have a price of 65 cts. per gallon set you by foreigners for your honey, whether you have large or small crops of it in California. Here, under the McKinley law, you see only $63,132.10 taken from the laborers and bee-keepers of our country. This is but a small sum to be lost by the large number of bee-keepers in America; but suppose this duty of 20 cts. a gallon were reduced to 10 cts. a gallon, as proposed by the Wilson bill; does any one doubt that the importation of honey would be increased ten times during the following 12 months, and the loss to American bee-keepers be half a million dollars yearly? Let us look these things in the face squarely, and not be blinded to the facts.

The small number of Americans raising honey on Mexican soil is not to be considered or weighed against the large number of resident citizens of the United States who would be injured irreparably by free trade.

Friend Hewes says that "when any country produces a large surplus, England and not New York is its destination." Let us examine the facts. The *New York Tribune* is authority for the statement that "the railroads of the United States in 1889 carried $13,930,587,840 worth of freight, not mentioning that carried by water. More than 92 per cent of this was consumed in the United States." The total value of the imports of Great Britain and 33 other leading nations was only $6,050,468,409, or less than half the value of the freight carried on our own railroads. The leaders in Parliament have recognized this as a fact, that our market, the United States, is the best in the world. Mr. Edward Atkinson, the eminent statistician, in 1890 published figures and tables in Bradstreet's, which show that, while our home trade amounts to 50,000,000,000 annually, our foreign trade amounts to only 1,600,000,000, or less than 3½ per cent of our home trade. Our Newhall friend seems to lose sight of the main question in his discussion of free trade. The burning question of the day is the same as it has been for the last hundred years; viz., shall American manufactures prosper under protection, or be destroyed under free trade? for this is the declared policy of Great Britain toward our country, Lord Brougham declaring, in the House of Commons, in 1816, "It is well worth while to stifle in the cradle those infant manufactures in the United States which the war has forced into existence, though we may incur a heavy loss on our first exportations in the effort so to do." In pursuance of this policy, England has poured goods into our markets far below cost; bought and slaughtered great numbers of sheep; bought our best machinery and shipped it off to England; hired our best mechanics, to get them away from us, solely to hinder and destroy our existing and prospective manufactures.

Friend Hewes arraigns our manufacturers because, forsooth, he is taxed to support them. How contrary this assertion is to the facts! Free-traders have been using this same phrase for a hundred years—"The tariff is a tax, and is paid by the consumer." Under free trade, steel cost us $107 a ton. Then when a duty of $28.00 a ton was imposed in 1870, according to our free-trade friends the price should have been $135 a ton. But as a matter of fact the price has constantly declined to $30 a ton, or even less. Take the case of steel nails. In 1882 we manufactured very few steel nails, duty 1 ct. a pound; price 8⅓ cts., all imported. In 1883, duty increased to 4 cts. a pound; price should be 8⅓ plus 3 = 11⅓ cts. a pound, according to our free-trade friends. As a matter of fact, the price declined to less than 2 cts. a pound, and in 1890 we produced 3,900,000 kegs. Will friend Hewes tell us what manufacturer he was taxed to support when he paid 2 cts. to 3 cts. a pound for steel nails, even in small lots, when, under free trade in 1882, the price was 8⅓ cts. a pound?

The English price of calico is 5 to 7 cts. a yard. The duty is 100 per cent. According to the free-trade theorists, the cost to the American consumer should be 10 to 14 cts. a yard; but it is only 5 to 7 cts. a yard here to the consumer, and sometimes less.

Similar illustrations almost innumerable might be given; but, enough. Many readers may desire to know why these things are so. The principal reasons are as follows:

First, our American market is the largest and the most diversified of any on earth, and it is the market the nations of the earth seek to obtain and control.

Second, under free trade, American capital fears to invest in great enterprises, employing thousands of men and paying tens of thousands of dollars in wages, in view of the fact that foreign manufacturers will spend dollars like water for the express purpose of destroying American enterprises; for they have done so in the past, and such is their publicly avowed policy toward our country.

But, you say, if the British factories reduce their prices, will not the American consumer be benefited? No, for two reasons. 1. The reduction is only temporary, until American enterprise is out of the way, when steel, for instance, will go up to $107 a ton as before, instead of $30, as under protection; 2. The price we pay for articles of consumption is a small matter compared to the importance of steady work for our people at fair wages.

Let me ask friend Hewes why such widespread paralysis of trade, manufactures, and business occurs in 1894. It is because the *free-trade* party is in power. It is because the people know their record; it is because American manufacturers, fearing free-trade measures will be enacted by the party now in power, refuse to run their mills, and put out the fires in their furnaces all over our land; it is because our people know that the result of free trade would be to flood our country with the products of foreign labor; a suspension of our own manufactures of all kinds; a gradual loss of our specie, sent to other countries to pay for these foreign goods; a necessary stoppage of most of our business for want of circulating medium; idleness of laborers and artisans; universal debt; depreciation of real-estate values; inability on the part of nearly everybody to pay their debts. These results are not mere theories of a diseased imagination—far from it. They are the teachings of history. Witness the first free-trade period—that preceding the adoption of the Constitution, when, during 1771, our imports exceeded our exports by 13,750,000—an enormous sum in those days.

Witness the second free-trade period—1816–1824, of which Horace Greeley said, "Our manufactures went down like grass before the mower, and our agriculture and labor speedily followed; financial prostration was general, and debt universal."

Witness the third free-trade period, 1833 to 1842, during which money was so scarce that, in some parts of Pennsylvania, people divided bank notes into halves, quarters, eighths, etc., from necessity, and goods sold at sheriff's sale for cents, that were worth dollars.

Witness the fourth free-trade period—1846 to 1861, against which legislation the great Daniel Webster made one of his greatest speeches, running through three days—July 25 to 28, 1846, and said, "You indulge in the luxury of taxing the poor man and the laborer! That is the whole tendency, the whole character, the whole effect of the bill. It is not a bill for the people or the masses! It is a bill for the relief of the wealthy classes, and takes away the means of living from labor everywhere." The *New York Tribune* reports that, in January, 1855, thousands of people in New York depended on charity and soup-houses."

Look at the sum of fifteen hundred million dollars that was paid to labor in 12 years, 1878 to 1890, in the steel industry alone, under protection; look at the wonderful prosperity of our country from 1861 to 1891—the growth of our manufactures—the hundreds of millions of money during these 30 years, paid our workmen, and then say, if you dare, in the light of history, in the pressure of such facts, that free trade is good for our country.

Chicago, Ill.

RAMBLE 112.

HOME APIARIES.

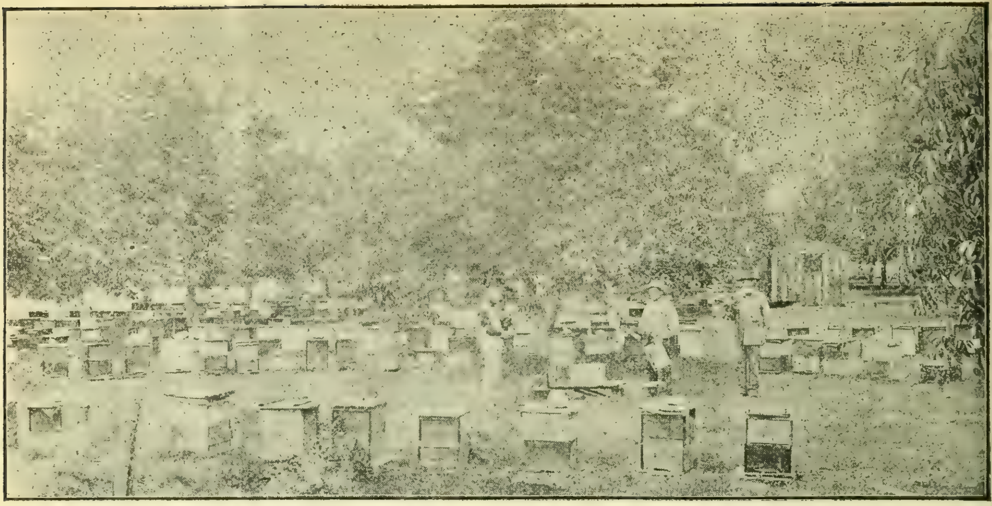
By Rambler.

In past rambles I have intimated that the home apiary, even here in California, was more attractive, oftener visited by the apiarist, and kept in better condition generally, than the apiary in the distant foot-hills. There are exceptions to the rule, however; and many times the out-apiary is nicely arranged, pleasant to look upon, and it is a pleasure to work therein, while not a few of those near the dwelling have as ragged an appearance as the most forlorn specimen in the foot-hills; and I find it makes but little difference where the apiary is located; for if the owner is an enthusiast at his calling, his apiary is always in a neat condition; but if the bees are looked upon as so many factors of the almighty dollar, and are only hastily visited in order to rob them of their surplus stores, the apiary is liable to be grossly neglected, even if located near the owner's doorstep.

It happens sometimes that the enthusiastic bee-keeper gets deep into the fruit-growing industry, and this encroaches so much upon his time that the bees are neglected; and if they do not succumb to natural causes, they are finally sold. The cultivation of fruits also gives employment all the year round. These little farms are seldom less than five acres in extent, and usually not larger than twenty; but occasionally they are found containing a hundred acres or over, and the work upon them requires a large number of workers, both old and young, male and female.

The would-be fruit-rancher comes to grief many times through the purchase of his little upon the credit sytem. While the little trees are slowly growing toward maturity the interest is also eating into the resources of the purchaser; and, without capital to tide over until the trees begin to bear, the purchaser may lose a few years of toil and some of his precious hard-sought earnings. The fruit-grower suitably situated can keep bees and grow small fruits, which, with ordinary seasons, give an income from the start, and have in many cases

APIARY AND EMBRYO FRUIT RANCH OF WALTER CHOATE, NEAR BLOOMINGTON, CAL.



APIARY OF MR. WILLIAMSON, OF RIALTO, CAL., UNDER ENGLISH-WALNUT TREES.

tided the fruit-grower over many hard corners. The loss sustained by many making purchases without sufficient capital, or a business to back them up, has led many to remark, with bitterness, that California is no place for a poor man. Still, there is now and then a poor man here, and there are perhaps a few poor bee-keepers; and the chances for the latter for a good start are better than for the poor man who invests simply in a fruit-ranch. The bee-keeper is reasonably sure of returns from his bees at least three years in five, with at least one heavy yield in that time.

To give your readers an idea of an embryo California fruit-ranch I obtained a photo of over 100 acres of fruits recently planted—peach, apricot, grapes, almonds, and oranges, owned by Mr. Walter Choate, of Bloomington, Cal. For the first few years constant tillage is required; and in due course of time the beautiful orchards will cover the whole area. Mr. Choate, as will be seen in the foreground, wisely continues bee culture with the fruit; besides which he is purchasing agent for the Cutting Fruit-cannery, of Colton and San Francisco. Mr. Choate has a very convenient honey-house, and is somewhat in advance of his neighbors in having an air-tight room in the honey-house, in which to store extracting-combs, and where they can be sulphured. The absence of this

RIVERSIDE AND ITS ORANGE-GROVES.

convenience in many other apiaries results in the destruction of many valuable extracting-combs by the moth-miller, in this semi-tropical climate.

Another very important element toward success that Mr. Choate has added to his home since the Rambler first knew him is a helpmeet; and very recently a baby's vocal powers resound under the thrifty-growing eucalyptus and pepper trees that are seen around the cottage and out-buildings. Mr. Cox, who manipulates the team, is also quite expert at the bees; and when the multitude of cares engross the thoughts and time of the owner of the ranch, Mr. Cox is a never-failing remedy.

Another very cosy home apiary is owned by Mr. Williamson, in the adjoining town of Rialto. The English walnut is a tree of noble habit, and the broad-spreading branches of a large orchard of them make a delightful place for an apiary—shady for the bees, and for the highest comfort of the apiarist during the hot months of his work. Mr. W. believes in painting his hives in nearly all the hues of the rainbow; for what reason, he said not; but it is to be supposed for the proper guidance of the bees or the young queen to the proper domicile. Mr. W. keeps the weeds and grass down to proper length in his apiary by pasturing in it his all-work horse. When asked if his horse ever got stung, he smiled audibly, and remarked, "Laws sakes alive! More than forty bees sting him at once; but he kicks and rolls, and gets rid of them, making things lively for the time being." From the way many of the supers fitted upon the brood-chambers, one might judge that the horse went around and kicked a great many hives. Mr. W. rented his apiary for this season to Mr. M. E. Osborn, of Petersboro, N. H. He put things to rights, and did much work through the early months of the season; but when the prospects shut down with such a gloomy aspect, Mr. O. folded his best clothes in his trunk, and returned to the cold hard climate of New Hampshire. Mr. Osborn, however, had other views concerning New Hampshire and California. The cool nights chilled Mr. O. to such an extent that he often remarked that he was going to leave semi-tropical California to get warm in old New Hampshire; but it will not be strange to see Mr. O. and his family residents of California ere many years go by.

Home apiaries have been on the increase among the orange-groves of beautiful Riverside. The poor prospects in the surrounding foothills have caused the owners of apiaries to move them to their own vine and orange-tree, and, as a consequence, one might suppose that the pasturage spread by orange-trees would be overdone, and probably was; for the very best colonies secured only one or two cases of honey, where several should have been secured. Thus bee-keeping is having its ups and downs in this State, as well as in others. All is not gold that glitters in the sand-hill; and though California can not be strictly in for a yield of honey this year, we have still strong hopes for the future of the industry here. Having a poor season to contend with, and time to look around for better fields, the Rambler and Mr. Wilder, at this writing, are setting out upon a trip of over a thousand miles. This will be performed in a camping-outfit, with camera, pencil, and gun. The results will be duly recorded by the

RAMBLER.

CHEERING NEWS FROM CALIFORNIA.

BEES AND FRUIT—NO FURTHER TROUBLE.

By J. P. Israel.

Friend Root:—Prof. Cook, in a late number, asked the opinion of experienced bee-keepers as to the advisability of producing comb or extracted honey. He is evidently on the extracted side of the fence, for he speaks of the danger of shipping the comb and its liability to break down. I have been producing comb honey here for twelve years. I have never shipped any east. I let others take the risk of that. I never have produced a crop that I did not get ready sale for at fair prices—cash down. Don't be afraid to produce nice comb honey—it is always cash.

A producer in a black-sage country should by all means produce comb honey, provided he does not have too far to haul it in a wagon. He should do this, because all black-sage honey is *white*. Where his flora is mixed he can make no pure white honey, therefore he should extract.

Prof. Cook is going to be a power for good in California. Already he has begun to establish an influence over the fruit-producers. But fruit-men are getting their eyes opened—opened by sad experience. Negotiations are now going on in a certain section of Fresno Co., to plant 1000 acres of black sage. This will be done by a company, or combination, of large fruit-producers. This sage will be scattered along the foothills—about 100 acres in a patch—five miles apart. Thus you see its benefits will reach a great many orchards, which in turn will pay back in nectar for the labor of the bees. These tracks of black sage will be irrigated and will yield floods of honey every year.

"How can we manage our bees so that our neighbors may not be harmed or even annoyed?" asks Prof Cook. The question, plainly stated, is, "How can the fruit-men dry their fruit and raisins without annoyance from the bees?" It is very simple. Let them *cover their fruit with cheese-cloth.* Fruit will dry in half the time that it will uncovered, and it will be much brighter in color, and much sweeter. It is being so long exposed to the sun and air that turns fruit so dark in color. It will pay the fruit-grower to dry under cheese-cloth, if there were not a bee within a thousand miles of him. As a protection against the bees, it is a complete success. Raisin-trays are 2x3 feet. Run them end to end, and they make a row 2 feet wide. Your cheese-cloth is 3 feet wide, and you have plenty to tuck under each side of the trays. Woe unto the bee or yellow-jacket that gets under that cloth! It dies within three minutes. This is after the honey season, and does not injure the bee-keepers.

FRIEND HEWES CORRECTED.

I was astonished at the statement of average yields of honey, made by friend Hewes, on page 374. He gives 35 lbs. as an average yield in this State. Why, friend Hewes, in 1884 I got nearly 19 years of your average yields from each hive—see GLEANINGS for 1884. There have been several good seasons since, so that I have got about 35 years of your average yields in the 12 years that I have been at the business here. If friend Hewes is entirely too low, the others are wild the other way. I should say 100 comb and 150 lbs. extracted is not very wide of the mark. There is only one thing I have against Bro. Hewes. He did not explain what he meant by a "tenderfoot." Some of our eastern friends might think it a reflection on his moral or intellectual character. But it is nothing of the kind. We only mean that he doesn't know any thing. I know many kind-hearted men who keep their cattle in pens of 50 to 500 acres, for fear they might mistake a tenderfoot coming along the road for a bundle of green hay.

Escondido, Cal., June 11.

QUEENS CRAMPING.

NOT DUE TO THE CATCHING OF THE FEET.

By Wm. Muth-Rasmussen.

As this subject is under discussion I will relate a case that came under my observation last year, and which was much more severe than any other I have ever heard or read about.

About July 1st A. I. Root mailed me a select tested Italian queen. She arrived late on the following Friday evening. I did not open the cage that night, but put a few drops of honey and water on the wire cloth, so that the bees could help themselves; and as a precaution against ants I placed the cage on a saucer inverted on a plate filled with water. Early the next morning I again fed the bees with honey and water, and after breakfast I opened the cage. As soon as liberated, the queen flew in front of a screen door, showing that she was all right. I then clipped her in the usual manner, and as I have practiced clipping for years, I am certain that I did not injure her. I placed her back on the door-screen, and, while I was laying the scissors away and reaching for the cage on an adjoining table, she dropped to the floor. thought it only a mishap, and, putting her into the cage without any bees, I started for the hive prepared for her. I had gone only a few steps, however, when I saw her tumble over, like a drunken man. Returning to the house to ascertain what the trouble was, I dropped her out in my hand, where she lay on her back, pawing the air with all six legs, and frequently doubling herself up. I looked particularly to see if any of her feet were fast anywhere, but they were all free. At times she would lie quite still, as if dead, and then start in kicking again, all the time lying on her back or side. Most of the accompanying bees had escaped when I opened the door; but, two had flown to the window. I put these into the cage with the queen, in the hope that they might help her. She lay thus from breakfast time till 4 o'clock in the afternoon, when she commenced to straighten out a little. At 5 o'clock she was able to stand up, but could move only with difficulty, frequently falling down. Next (Sunday) morning she was running around in the cage, as lively as ever. I then introduced her to the colony prepared for her, and did not disturb them for two or three days, when I found her liberated and laying.

On the doorsill, to which the queen dropped, was a little insect powder (buhach), which had been sprinkled there a couple of days before to kill ants that were coming into the house. I presume the queen got the cramps while she was on the door-screen, and that this caused her to lose her foothold. Whether the insect-powder had any effect on her or not is an unsolved question. It generally loses its strength soon after being exposed to the air, and in this case had been lying there and tramped over for a couple of days.

Fearing that the queen might not live, and desiring to replace a lot of old queens, I sent immediately for another, which came in due time, and was clipped and introduced without any mishap. I reared over forty young queens from these two, the same summer, and both are to-day mothers of prosperous colonies.

ROBBER-TRAP.

I was one of those who wrote to friend McIntyre about his robber-trap. He kindly gave me by letter a brief description. To avoid boring holes in any of my hives I made a little alteration in the arrangement. A triangular piece of wire cloth, about 11 inches long on each side, was folded in such a way as to make a shallow triangular box, ⅝ inch deep, having two of the sides provided with ⅜-inch-wide flanges, turned out at right angles to the sides. The third side is open; but a similar flange is turned out from the bottom edge of the box. This wire-cloth box I placed upside down in an empty hive with fast bottom. The open side covered the entrance, which is six inches wide in my hives, and the three flanges were fastened with tacks to the bottom-board and to the front of the hive, over the entrance. In the corner of the box, opposite the entrance, I made an opening for the robbers to pass through. The cover was made similar to McIntyre's, except that I hinged it at one side and secured it with a hook at the opposite side. I used unfinished sections from last year as bait. The trap worked all right.

Independence, Cal.

A KILLING HOT WAVE.

MRS. ATCHLEY LOSES NEARLY ALL HER NUCLEI.

By Jennie Atchley.

Dear Mr. Root:—I have just finished reading GLEANINGS for July 1; and after reading your talk about the condition of the country to several persons they exclaimed that we needed a whole lot more of such men as A. I. Root.

Now I have something sad to report to you. We have lost nearly all our nuclei, and came very near losing our lives. It turned so hot last Monday, the 2d, about 11 o'clock, that water came very near the boiling-point in the shade. Our bees were cooked, just as if the hives had been on fire. All the strong colonies were uninjured; but the largest part of our nuclei were badly damaged or killed outright. Shade made no difference. The more the wind blew, the hotter it was. The thermometer registered 114° in the coolest place about the house. Chairs and all the furniture, and, in fact, every thing, would burn to touch it. From noon till midnight we had to keep the hose running, spraying the house, beds, and furniture, and constantly giving water to the children and family, to keep down suffocation. There was no place to seek refuge from the heat. We did not know the extent of damage to our bees till all outyards had been visited. The bees were burned, and as brittle as could be; the honey boiled, and the combs melted. The wax and honey, with the bees, were on the bottom-boards. This, I know, seems fishy; but it is all true. See this clipping from the Beeville *Bee:*

> Monday was, perhaps, the hottest day Texas has experienced — at least for several decades, and Beeville was, without a doubt, the hottest place in Texas that day. In many places in different parts of the State the thermometer went up to and a little above 100; but in Beeville, about 3 o'clock, it registered from 110 to 115. Old settlers say it beat any thing they ever experienced in their lives. The wind was from the southwest early in the morning, but gradually varied to the north, and by noon it was blowing directly from that point of the compass. The intensity of the heat began to increase very rapidly then, and between 3 and 4 o'clock it seemed as if the whole sphere would ignite from spontaneous combustion. Water in the shade would almost blister one's hand, and every thing touched seemed as though it had been near a furnace. The gentle zephyrs were apparently turned into flames from that region where they say the inhabitants are never troubled with the laborious task of shoveling snow. Faces were blistered, and it appeared as though the green foliage of the trees would be badly scorched to its autumn color. It was after midnight before the atmosphere cooled enough to be more than barely perceptible. By morning, however, the wind was coming from the southeast; and while Tuesday was pretty warm, it was nothing to compare with Monday, which everybody agrees in saying was the hottest day in their experience.

We shall try to use our full colonies to start up our nuclei again as soon as possible. We have about 100 untested queens left, out of the whole of three large yards, that we hope to keep our customers supplied with till we get more raised. If the next day had been as hot, I do not think we should have had any bees left; and probably stock and people would have died, as people who did not have water facilities to hold the temperature down had their faces blistered.

Beeville, Texas, July 9.

[The winds mentioned in the above are comparatively common in California. I did not know, however, that they occurred in Texas. In the vicinity of San Jacinto many apiaries had a tight board fence on the north side in order to cut off the hot winds from the Mojave Desert. I laughed at them for shading their hives on the north, when the sun was in the south. They said these hot winds were far more to be feared than the sun itself; and that at times, if this hot wind struck a bee-hive, it would melt the combs down and eventually destroy the colony. We sympathize with our friends at Beeville, and trust that such things do not happen very often. The hottest winds are said to sweep down from Death Valley, and it is very likely the terrible heat that gives this valley its name.] A. I. R.

THE DUMB-WAITER.

FULL DIRECTIONS FOR MAKING ONE FOR HOME PURPOSES.

By Stephen Luther.

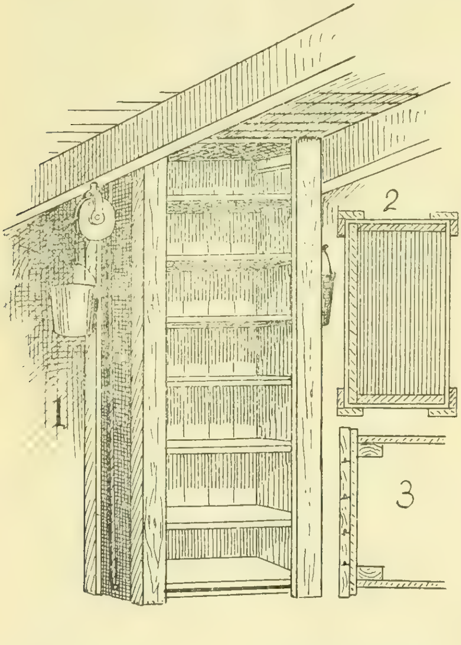
Friend Root:—In GLEANINGS for 1891, p. 264, Mr. Stewart describes a dairy well. In your remarks you say you wonder why somebody did not invent a dummy, or elevator, to run provisions into the cellar. In 1890 I built such an elevator; and it is such a satisfaction to my family, and as I am a constant reader of GLEANINGS, and have not seen any thing pertaining to such an article since, I concluded to send a description of mine.

To make it I commenced by sawing out a piece of floor the size I wanted for cupboard (14x25½ inches). I then took 2 pieces of narrow studding, 14 inches long, and spiked, or toenailed, fast at each end, to the joists under the floor, placing them ⅞ of an inch below the floor and projecting into the hole ¾ of an inch, for projections that are on upper end of the cupboard to rest on.

There is a board 8 inches wide nailed to the under side of the joists at each end of the hole, in the right place to fasten guides to; also to hang pulleys to. No. 3 shows upper end of cupboard, and the way it is constructed. The cupboard is merely a plain box, open on the front side, having cleats nailed on the insides, at proper distances apart, for shelves to rest on.

The strips across the sides in the upper corner of the cupboard (inside) are 3 in. wide (Figs. 2, 3). These strips are nailed solidly to the sides of the cupboard, and bolted to the top of it; two $\frac{3}{16}$ bolts, 4 inches long, are used in each strip. This makes a solid joint to stand the jar of going down suddenly. The end of the board at the top of the cupboard projects ⅞ inch at each end (Fig. 3), and ¼ in. on each side, and the floor-cut out is replaced, as finished, on the top of the cupboard.

When the elevator is down, the floor hardly shows any division, having been cut with a fine saw. A ring and staple through the center, at top, serve to pull the cupboard up with. The projecting edges at the top of the cupboard should be beveled at the lower edges, so as not to strike the floor. The frame or guide (shown in No. 1) in the cellar is made by taking 8 strips of board, 4 of them 2 inches wide, and 4 of them 3 inches wide. The wide strips are nailed to the edges of the narrow ones, making the V-shaped or three-cornered trough, the lower end of which is shown in No. 2. No. 2 shows the bottom of this frame, which is to keep the cupboard from swinging out at the bottom. A board, the size of the hole in which the cupboard is to slide, should be fastened between the guides at the bottom, and should be 2 inches farther from the floor above than the length of cupboard. This is to make sure that the cupboard-weight rests on the studding which has been spiked to joists above. The frame, when done, should lack 2 feet of reaching the cellar bottom, to keep rodents out; or a screen door may be hung on a frame.



No. 1 shows the cupboard below the floor. My cupboard is 23¾x13½ inches, and 7 feet long, being smaller by ½ inch one way and ¼ the other than the hole it slides in. You see I have large hay-fork pulleys, and use only one on each side. But unless the diameter of the pulley is a little more than ½ the diameter of the weights, you must have two on each side to prevent the weights from rubbing the ropes or side of the cupboard. My weights are old pails of gravel. They must weigh alike or the cupboard will not run true; and they must be heavy enough to balance the cupboard and its contents. My elevator is in my pantry; but one may be in the kitchen or dining-room. The women-folks wonder how they kept house without one, especially in hot weather. It saves much running down cellar.

Fairview, Pa.

[We have a dumb-waiter in our house, and during the summer our women-folks find it a great convenience. Ours is made on much the same principle, only we use dumb-waiter pulleys such as can bought at the hardware stores. If the waiter is not too heavy, window-pulleys such as are used for supporting windows may be used.—ED.]

DOCTORING WITHOUT MEDICINE.

A PLEA FOR MILK, COMING FROM AWAY OFF IN OKLAHOMA.

By an Old Subscriber.

Dear Friend Root:—I have read GLEANINGS since your first number was sent to the public. I have been greatly interested and benefited by reading what you have written during these many years that have gone with all else in the past; but in your issue for June 1 you let pure sweet milk fare so badly that I can not longer remain silent. I reply, however, in a proper spirit, and harm can not obtain. You are generally right; but for once you are wrong. Milk is nature's first food for man, and no physiologist has yet discovered a place in normal man's journey through life at or beyond which milk loses its value in man's diet. Moreover, it is equally true that we know of no proper substitute for milk. Milk contains all the elements necessary for the development of the youth; and if the adult man is not possessed of a depraved appetite, milk will continue to supply every nook and cranny in his body with material for the reparation of the wastes going on. In many instances human life is sustained indefinitely by the use of milk. If an adult has worshiped at the shrine of modern civilization (I should have said modern dissipation) until nature has been forgotten by some of the organs in his being he will not find so much satisfaction from the continued use of milk in every instance. The human body has been analyzed, and the many simple elements contributing to its normal condition are known; and when, from any cause, any number of these elements are wanting in quantity or quality, the body is diseased, and we should furnish what is lacking, whether it is to be found in a pineapple, a drugstore, or in a glass of milk. We thus assist nature, while some one else steps in between nature and nature's work in some other case, and does lasting injury to generations yet unborn while trespassing upon nature's own.

Milk did not make you bilious. You would have been bilious without milk, and the pineapple would have done you as much good had you drank milk the same day.

Otoe, Ok., June 8.

[My good friend, I am not going to try to argue against you at all. I hope you are right, and I am trying to believe you are wholly so. After dropping the milk diet, my strength began to fail, just as I expected it would, and in a few days I resumed the milk again. The bitter, unpleasant taste in my mouth came back; but it was right in strawberry time, and I discovered among our luscious berries one that takes the place of the pineapple beautifully. It is the Warfield. We once discarded the Warfield, but this year one of my old plantations that I had intended to plow up gave such a bountiful crop in the early part of the season that I reversed my decision. The berries this year are larger and more luscious than ever before; and, strange to tell, I discovered that the sprightly sub-acid Warfield was just the thing to make my mouth sweet and pleasant. Now, I did not go and pick a great lot every time I felt that taste; but I just took a few nice ones, say a dozen. This seems to neutralize and banish the unpleasant taste. If I understand you correctly, we do not need to abate any of the milk in our diet; but we want to find something else that nature furnishes (in the shape of luscious fruits, for instance) to go along with the milk. Just think of it, friends—the latest medicine for sweetening the breath is "Warfield strawberries"!] A. I. R.

THE USE OF LIME-WATER FOR DYSPEPTICS.

Dear Friend Root:—I have just finished reading GLEANINGS for June 1. I am more pleased with each number. We look for it more than all the other periodicals or papers we take. I am much interested in your experience writings, and hope you may live long to continue them. I too am a dyspeptic, a little nervous, getting along in years. I almost live on milk, and find it more agreeable with the addition of a little lime-water. In fact, I can hardly eat my evening meal of bread and milk without about two table-spoonfuls of lime-water.

I feel that I owe you much. Through you I "keep bees," and am much benefited thereby. Your sermons in GLEANINGS are strong and helpful. May God give you health and strength to continue them long. A FRIEND.

Abilene, Kan.

[My good friend, I thank you especially for your suggestion—the more so as it recalls something I have felt ought to be in GLEANINGS. It is this: Some years ago a dear friend of mine had a sudden attack of some difficulty with the stomach, rendering it impossible for him to take any kind of food for many days. The best physicians were summoned, and they feared he would starve to death in spite of any of the ordinary means of affording nourishment. He at length got some better; but the trouble was pronounced incurable, and he was told that he had not long to live. However, he slowly recovered, and now enjoys tolerably good health. When I asked him what doctor, or what medicine it was that restored him, he replied that it was no doctor at all, and the remedy could hardly be called a medicine. It was simply lime-water. A lump of quicklime is put into a large glass jar of water, and the clear portion is poured off from time to time as needed. He says they keep it constantly on the table, and a spoonful or two is taken at each meal. This alone has gradually restored his digestion. He says if he omits the use of it very long, the old well-known symptoms begin to come back. I suppose the remedy is nothing particularly new, for physicians often prescribe it, and, in fact, you can purchase lime-water, prepared for medical purposes, of any druggist. It is often given to babies, I believe, where there is a tendency to fermentation and acidity in digestion.] A. I. R.

LADIES' ? ! CONVERSAZIONE

THE EIGHT-FRAME HIVE FOR LADIES; WINTERING IN THE CELLAR; A BEE-APRON, ETC.

I have been an interested reader of the various discussions relative to the size of hives. I have tried both eight and ten frame hives, and have arrived at the conclusion that, for several reasons, the eight-frame hive is preferable where the honey season is necessarily short; at least, I have found it so in Northern Wisconsin. I keep only a few colonies, and have ample time for observation.

Again, in reading A. A. Rice's plan of wintering bees I find that he removed the covers and substituted absorbing cushions; but is it really necessary to use any thing if the cellar is in the right condition? I will tell you of my way for wintering bees, which I have tried for three successive winters. I have never lost a colony. I leave the bottom-board on, remove the covers, and tack a piece of old cotton cloth (usually a piece of an old sheet) over the top of the hives. This prevents the bees from escaping, and at the same time allows the moisture produced by the bees to escape. My cellar is only an ordinary one under the kitchen, with a door opening into the kitchen. I ventilate the cellar by opening the door; also the outside kitchen door. I usually keep a few bushels of potatoes in the same cellar—not as provender for the bees, but I find that, while they remain sound and firm, the bees are in good condition.

I was especially pleased with the article telling of some one, I could not quite make out who, that indulged in licking the honey from his fingers while at work among the bees.

Perhaps some of the ladies who keep bees will be pleased to know of an apron that does away with soiled hands, and at the same time is useful as a means of keeping the garments clean. Take common table oilcloth; cut out an apron of any size you may desire; be sure to have it seamless. Cut notches around the edge, to save hemming, as that makes it heavy. Now cut two wide deep pockets; sew them flat on the outside of the apron, holding them a little full so that they will not tear at the corners when filled. Fasten on two stout strings. Wet a sponge, or a piece of Turkish crash. Put it in one pocket; use it to wipe your fingers on. The remaining pocket is intended for miscellaneous articles, such as tablet, pencil, a small file, which I use to pry off covers with. Of course, this is simply a matter of choice. When you go out to work among the bees, tie this apron on; adjust your veil as directed by Miss Wilson, and you will be (or ought to be) happy, cheerful, serene—yes, even though the bees sting your hands, and the playful zephyrs burn your face to a beautiful red. A. C. N.

Rice Lake, Wis., June 30.

[We do not know that absorbents over colonies in the cellar are absolutely necessary. Mr. A. A. Rice, however, was successful in their use. It would be doubtful, if he were alive, whether he would risk going without them. Dr. A. B. Mason, who winters most successfully in the cellar, uses nothing but thin cloths over the bees.

The individual who makes a practice of licking his fingers when daubed with honey is Ernest, and he is the chap who always uses the pronoun *we* in the footnotes. We have no doubt that a damp sponge would be cleaner and nicer. But what a pocketful it must make! Somehow or other we find it convenient to get along with as few tools as possible. A light thin veil, a knife, and a smoker, are about all the tools we ever use when working with bees.—ED.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO. N.Y.

PAPER PANS FOR SHIPPING-CASES.

Question.—I understand that you use paper pans inside of your shipping-cases, to catch the drip from any section that may chance to "bleed" from any reason, thus preventing this drip from soiling the cases of honey which may be below it, as it otherwise would, were no such thing used. What I should like to know is, how you fold these paper pans. I have a way of folding them over a sheet of tin, cut to fit the inside of the case; but it is rather slow where hundreds of them have to be prepared in a single season. It seems to me that some simple machine might be devised to do the folding with one or two motions, without having to go over each edge and corner separately. You would oblige by describing your method in GLEANINGS.

Answer.—This question comes in very opportunely, as now is the time we should prepare our honey for market; and I know of no one thing which helps as much to bring favor to our goods as do these paper pans in the bottom of each case. While in New York, some years ago, I saw cases of honey piled ten and twelve high, and the drip from the upper cases ran all the way down to the floor, daubing the snow-white cases, which had been gotten out and put up with great pains, not only spoiling all their beauty, but making them a sticky, nasty mess to handle. Up to that time I had not used paper pans; but then resolved that I would try to fix some way so that my honey should not appear in market in that condition. That winter I met Samuel Snow, a quiet bee-keeper residing in our county, at the New York State Bee-keepers' Convention, and in a private conversation with him he told me that he used paper pans for the prevention of drip through shipping-cases, telling minutely how he made them, kind of paper used, etc. The next season found me buying manilla paper, of a quality costing 10 cts. per pound, in quantities of from five to ten pounds, when a piece of board was fitted to the inside of the case, the board being $\frac{7}{8}$ inch thick. The paper was now cut $1\frac{5}{8}$ larger each way than was this board, so that, when this paper was folded up evenly all around it, the sides of the paper pans were just $\frac{7}{8}$ deep. The pan was now slipped inside of the case, and a little strip of wood, just as long as the case was wide, and $\frac{1}{2}$ inch wide by $\frac{3}{16}$ thick, was placed at such distances along the inside of the paper pan as was necessary, so that the ends of the sections rested upon it, thus keeping them up $\frac{3}{16}$ of an inch from the paper, thus allowing the drip to rest below the sections so that the outside of the cases was never soiled while the bottoms of the sections were kept clean also, if any thing should occur to start the honey in them to leaking. This, of course, requires the cases to be made $\frac{3}{16}$ deeper than they would be were it not for these little strips of wood; but the keeping of the sections clean is of fully as much importance as the preventing of the drip through the cases. I have kept leaking honey standing all winter in such cases with paper pans, and the manilla paper seemed sufficient to stand a wetting of honey that length of time, as none of it soaked through so as to come through the case any. I am well aware that, so far, I have not answered the question; but I thought that, if I said any thing on the subject, it should be made plain, so that any one could make and use the paper pans who wished. I have no other mode of folding than that described above, or the one-by-one method, and think that, by this plan, with the board, I can fold from 80 to 100 an hour, so that it is not such a serious job unless honey is produced up into the tons. However, if there is a quicker way, or one where several pans can be folded at a time, I as well as other readers of GLEANINGS should like to know of it.

REARING QUEENS AFTER THE SUMMER HONEY-FLOW.

Question.—I have some queens which I wish to supersede with queens of my own raising after the summer honey-flow, or in the interval between the summer and fall flow of honey. Can I raise them as late as August, and be sure of drones for their fertilization, without any special provision for drones? In other words, how late can I reasonably expect queens to be fertilized in the ordinary drone season?

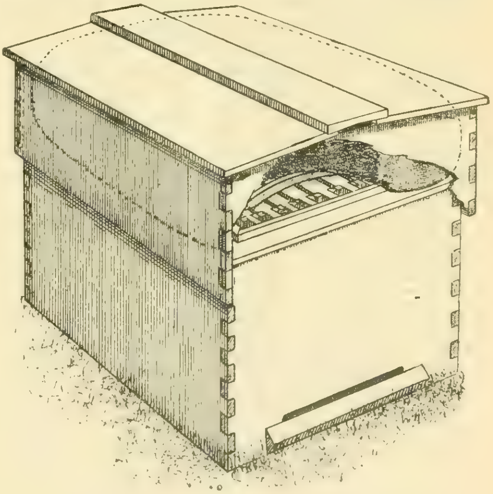
Answer.—In this locality drones are usually driven out of the hives soon after the summer honey-flow ceases; and unless there should happen to be some queenless colony in the neighborhood which would keep their drones, the queens reared at such season of the year might prove to be drone-layers; still, as a rule, some colony within mating distance of our queens is liable to hold or keep their drones so that little risk is run in having queens prove drone-layers if reared in August. But I should prefer to run no risk, nor would I wish my queens to take their chances of mating inferior drones, coming from a promiscuous source; and for this reason I set frames of drone comb in one or two of my best colonies for drones about the middle of the summer honey-flow; and as soon as the flow is over this drone brood is massed in a strong colony, which is now made queenless, when it will keep these selected drones as long as it is kept queenless. If fed abundantly, this colony will rear fine queens for you, but little if any inferior to those reared in the height of the honey-flow. This massing of drone-brood from selected mothers, for fall-rearing of queens, pays as well, according to my way of thinking, as any thing any queen-breeder can do. I firmly believe that, with many other of our most practical bee-keepers, more depends on the selection of the drones than on the selection of the queen we breed from; yet how few pay any attention to this matter of the selection of drones! The one great hindrance to a rapid improvement of our stock along the many lines we wish, lies in the fact that at best we have only very imperfect control of the drones which our queens mate with. Nearly every year some one writes me that they are ready for the $100 I once offered for a sure and simple way of mating an individual queen to an individual drone, so that we could be as positive regarding the matter as we were with the most of our other domestic stock; but when I come to write for particulars of the matter it always turns out to be the same as in the past, that some device has been employed like a tent, barrel with glass in the top, etc., after which the queen was put in the hive, and in four or five days she was laying. Being told that the queen flew from the hive after being put in, and that she must have her wing clipped before she leaves the tent, etc., in order to claim the offer, no one lays claim to it after such precautions are taken, and I feel justified in claiming that there has not been a single instance where a queen has produced worker brood and bees, except as she has flown out in the open air to seek a partner, free to go where she desired. I used to believe the controlling of the mating of our queens was a possibility; but my faith is growing weaker every year.

TRADE NOTES

BY EARNEST R. ROOT.

THE 1894 DOVETAILED CHAFF HIVE.

It is not too early yet to be considering methods of wintering. If you expect to winter outdoors, as the majority seem to do in this latitude, it is about time you were considering your double-walled hives, if you have not yet laid in your supply. Our dovetailed chaff hive has given good satisfaction, with one exception, and that was the cover. The wet from the rains had a fashion of creeping up the perpendicular edges of the water-table, and soaking the cushions. Accordingly, last winter we made large telescope covers* — large enough to telescope over the hive, water-table and all, and 9 inches deep. This left room for a good-sized chaff cushion to rest over the brood-nest, and to extend over the water-table. All that is necessary in preparing for winter is to put on the cushion over the Hill device, and slip the cover over the hive. The accompanying engraving will show the arrangement as we use and recommend it. The water-table remains the same as it was made several years ago.



DOVETAILED CHAFF HIVE.

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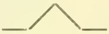
*Just the same as used on the winter case.

The raised edge has the same outside dimensions as the eight-frame dovetailed bodies, and therefore the ordinary eight-frame stories and supers will fit on this hive. The cushion occupies the space as shown and indicated by the dotted line. The ends of the Hoffman frames appear just under the Hill device, that part of the cover being broken away. The cover will telescope over the whole an inch or two, depending upon the thickness of the cushion, and whether or not air-space above said cushion is desired. In this case, small cleats can be nailed on inside of the cover, at the right positions, so that the cleats will rest on the water-table, and support the cover high enough to leave the air-space above the cushion; but in actual practice we find it just as well to let the cover come in contact with the cushion. The ventilator at the ends, just under the ridgeboard, affords sufficient ventilation for the escape of moisture.

Our colonies, under such covers and in such hives, wintered perfectly last winter.

Heads of Grain from Different Fields

EIGHT V. TEN FRAMES.

I notice by Gleanings that Dr. Miller is "on the fence" in regard to using the eight-frame hive instead of the ten-frame. One objection to the eight-frame hive, as he puts it, is, that the bees don't like to raise brood in the two outside frames. My hive is a little larger than the eight-frame; but the bees of nearly every hive use one or both of the outside frames for brood. My frames are parallel with the entrance (not the best way, however), and it is the exception when I don't find brood next to the back side of the hive. The secret of it is this, if it is a secret: Have the same spacing between the outside frame and the side of the hive that you have between the frames. I use little pieces of heavy tin, ¼ in. wide and about 2 in. long, bent in the shape here shown:  My father began using them something over 16 years ago. I use four on each frame, putting them on diagonally opposite sides — two on the top-bar about 2 in. from the end, and one on each bar, about 2½ in. from the bottom. I nail four to the hive also. I don't think they are as good as the Stephens spacer, and I prefer the Hoffman V edge to either. That could never dull the honey-knife in extracting.

I have something over 100 hives. Two of them are eight-frame Dovetailed hives which I got last year. Both were strong colonies this spring, and one of the queens — a two-year-old one—was especially prolific; but in neither was there any brood in the outside half of the outside frame. In my regular hive, ten frames occupy 14¾ in.; so perhaps strips ⅛ in. thick, nailed to the side of the Dovetailed hive and to the follower, wouldn't be thick enough to accomplish the desired end. Incidentally, such "offsets" prevent the bees from gluing the top-bar to the side of the hive or follower.

John S. Callbreath.

Rock Rift, N. Y., July 2.

QUEENS CHANGING.

Mrs. Atchley's article on page 452 brings to mind an incident in my early experience with bees—about eighteen years ago. I had bought a swarm from a neighbor, and, during the summer and fall, the queen produced nothing but nicely marked Italians. The next spring I was surprised to see a considerable number of hybrids in that hive; and when I opened the hive and found the old queen, which had produced nothing but nice Italians the preceding year, had a clear case of a queen changing. The old queen was marked so that there could be no doubt that she was the queen which had produced nice Italians; and there was the host of hybrids present to prove that she had changed. A clear case, wasn't it? It proved conclusively that Quinby, Langstroth, Root, and the other fellows who wrote bee-books, didn't know every thing about bees. It was a good, clear, incontrovertible case of a queen changing; but my curiosity led me to open the hive again in a few days, and that time I found another queen. It *was* a case of mother and daughter living through the winter in the same hive, but it *wasn't* a case of "queens changing." In a case like this, Mrs. Atchley's "mark of identity" would prove a failure.

East Springfield, O. R. M. Reynolds.

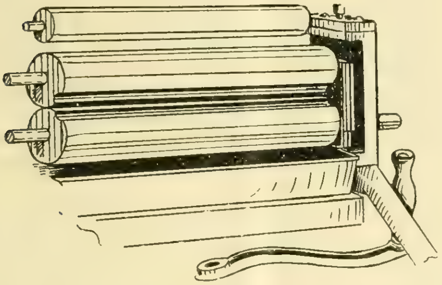
LAYING WORKERS; WILLIE ATCHLEY'S IDEA INDORSED.

On page 506 Willie Atchley has given Rambler an answer as to where the egg came from that was found in the super. There is no doubt that Mr. Atchley is right, and no doubt many will remember having seen eggs in supers, and wondered how they came there. I think we have all read of bees stealing eggs, and many honestly thought they did so, and possibly in some cases it has been done. For some years I have wondered how it came that I could find a few drones in worker-cells in the supers. Three years ago I became fully satisfied that it was the workings of a laying worker. We know that laying workers are in the hives at all times, or, at least, during the honey season, and they will get in their work when we least expect it. Cyprian bees and their crosses are much the worst, and I found quite a little trouble with them because a laying worker would set up business within a few hours after the queen went out with a swarm. Then why should not a worker, when above a queen-excluder, deposit a few eggs once in a while? We venture the assertion, that no one ever knew eggs, deposited above the queen-excluder, to hatch out any thing but drones, unless by chance the queen got through; and if she did get through, was she ever known to get back alone? We believe a queen could pull herself *up* through the perforated zinc much easier than she could *down*. I believe that, if bee-keepers would only *look* for fertile workers or laying workers—whichever you wish to call them—they will find them more numerous than expected. M. W. SHEPHERD.

Rochester, O., June 20.

A SUGGESTION FOR FOUNDATION-MILLS.

It seems to me I have struck on a valuable point in the construction of foundation-machines. I inclose a draft that illustrates the point. It is simply a groove, or depression, in the rollers, and matched so that, when the sheet is started in, there will be a bit of the end that will not be pressed or stuck to the roll. Thus the end of the sheet can be grasped at once, and the rolls need not be stopped to pick the end loose. The rolls would have to be thick enough so that they would make the longest sheet with one turn of the roll. A six-inch diameter in the roll will make a sheet long enough; and they can be made as short as wanted, on the same roll. If it runs too hard for direct power, gear back. Have the groove, or starting-point, so that it will always stand open, just ready for the sheet when the crank is at rest. The idea may be old to you, but it seemed valuable to me, so I suggest it.



Loveland, Col., March 7. R. C. AIKIN.

[The idea is a good one; but it is not practicable to make rolls 6 inches in diameter. They would cost three times as much as the present mills.—ED.]

DOES THE ACT OF CLIPPING A WING HURT?

Why don't some of those old bee-keepers who clip queens' wings off get Quinby's old "Mysteries of Bee-keeping" and learn how to prevent swarms from putting off to the woods? It would save them the cruel practice of cutting wings. They say it doesn't hurt; but nobody with feeling believes it. I suppose dehorning cattle doesn't hurt. Some say it doesn't. Everybody knows better. I live surrounded, within 600 yards, of woods on three sides, and my bees never elope. Quinby's plan is—as soon as hived, move the hive at once to some other place, say two rods off. They never leave with me. Before I read this and practiced it, about a half cleared out. I. BARFOOT.

McClure, Ga.

[Unless there are nerves in the wings the clipping of them can give no pain whatever. The microscope, if we are correct, shows no nerves, nor any thing that corresponds to them. There are nerves in the hollow of the horn of cattle, the same as in the human tooth. Hence the cutting of either causes pain.—ED.]

EXCESSIVE SWARMING OF CARNIOLANS.

[The following card will explain itself:]

I wish to ask the Carniolan bee-keepers how they keep the Carniolan bees in the hive long enough to get a box of honey put up. I wish the answer to come through GLEANINGS.

Emporia, Kan. CHAS. CHANDLER.

[There are a number of Carniolan bee-keepers who can give their experience. Carniolans with us seem to be more inclined to swarm than any other bees we have. Still, we have not had any special difficulty with them.—ED.]

REPORTS ENCOURAGING

Bees are doing nicely on raspberries and clover, with excellent prospect for basswood. So far this seems like one of our old-time honey seasons. A. E. MANUM.

Bristol, Vt., June 21.

Bees are making us hustle here now. Swarming has commenced. N. D. WEST.

Middleburgh, N. Y., June 11.

Honey crop is nearly 50 per cent above an average, and of good quality. Our honey-flow is now about over, and we have only to clean up for the summer. W. J. DRUMRIGHT.

Sarasota, Fla., June 10.

REPORTS DISCOURAGING

I shall not make a pound of surplus. In this section we have to feed our bees now. Cold spells in March and April ruined every thing. I want to supply my local trade at least.

Glasgow, Ky., June 12. F. G. RAILEY.

DISCOURAGING FOR MISSOURI.

I have had the poorest honey-flow for 8 years. Frost came for three nights and killed raspberry-bloom, oak and sumach leaves, till the woods look as if a fire had passed over them. Basswood buds are killed. If I were able I would put 120 colonies on cars and go to Wisconsin woods. I shall not put on the sections. No rain for a month, and grass and clover are burned up.

Hopkins, Mo., June 4. JOHN C. STEWART.

GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7x10
$1.00 Per Year.

Lay not up for yourselves treasures upon earth, where moth and rust doth corrupt, and where thieves break through and steal. — MATT. 6: 19.

THE portrait-plate showing Bro. Holtermann, in another column, came from the office of the *American Bee Journal.*

BY error, the article on "Imported Queens," page 546, was credited to Harry Lathrop, when it should have been J. R. Reed, of Browntown, Wisconsin.

BRO. HUTCHINSON is making a great success of the hobby that he rides between times—photography. Before us lie some beautiful photographs illustrating various phases of apiculture.

G. M. DOOLITTLE has a valuable and seasonable article under "Seasonable Questions," in this issue. Don't fail to read it, if you are troubled with honey dripping from one shipping-case to another.

THIS morning, July 11, the bees have been roaring on the basswoods stronger than we ever knew them to do before. Great swarms of them pour over the tops of the evergreens, and individual bees drop down as if they had just strength enough to get to the entrance.

MR. EMERSON T. ABBOTT, of St. Joseph, Mo., President of the N. A. B. K. A., the date of the next annual convention having been fixed (Oct. 16-18, at St. Joseph), requests that the readers of GLEANINGS, who think of going, send him a card at once. This will aid him greatly in getting reduced rates.

ALTHOUGH GLEANINGS has the distinction of being an illustrated journal, this one seems to be especially full of pictures. Fact is, it is now, or ought to be, a busy time for the bee-keeper, and he has to review his journal by glances rather than by extended reading. Engravings are great time-savers to the reader.

SEVERAL days ago I expressed a wish that the above text might be printed in very large black letters, and placed on an immense banner in the city of Chicago, so high up that every man, woman, and child in that turbulent city might see it. My suggestion was met by the remark that most of the law-breakers could not read it, for they could not speak a word of English. Then I would have it printed also in every man's mother-tongue, and I would beg of Mr. Moody and his army of workers to go earnestly to work explaining the text to the people. Then I should expect a result something similar to the one that followed his revival work in the city of Dublin, several years ago, when more than half of the police force of the city could be dispensed with. A. I. R.

DID it ever occur to you that thick-top bars are much easier handled, because of their affording plenty of finger-room along the thick edges, than the ordinary old thin top-bars? It is almost impossible to handle the latter, when filled full of capped honey, without running the fingers into the honey. Not so with thick-top bars. We have just been handling the bees at our out-yard on both kinds of frames, and we notice that there is a marked difference in the relative convenience of handling.

AT this time of year, propolis has a way of sticking to the fingers, daubing up smokers, and sometimes making it difficult to let go of a tool when we want to. All this may be avoided, says Alfred Mottaz, of Utica, Ill., by smearing the tips of the fingers with a little grease. Perhaps it would not be a bad idea, just before starting to work among the bees, to dip the ends of the fingers in a little vaseline or grease; and then, for instance when we go back to replenish our smoker, dip the fingers in again.

Later.—After writing this much we concluded it would be best to put the thing to an actual test; and, procuring a small box of vaseline, we smeared the tips of the fingers, and so far it seems to keep the fingers clean of propolis stains.

THOSE PARENT COLONIES.

THE following letter, received, will explain itself:

> In GLEANINGS for July 1, page 554, you give an interesting account of a bicycle visit to the apiary of Mr. Vernon Burt. Near the close of the article, in describing Mr. Burt's methods in hiving swarms, you say he, in a day or two, runs another swarm into the old hive he had removed to a new location. This is a new idea to me, and probably is to many of your readers. Will you kindly describe fully in GLEANINGS the proper way to go about this method of handling swarms to keep down increase? Will they not be inclined to fight? and should queen-cells be removed from the old hive?
>
> Torch, O., July 5. L. POSEY.

We did not desire to convey the impression that Mr. Burt ran a swarm into every one of those parent colonies that were set on another location; only a few of those, comparatively, were thus treated. As to the queen-cells, he cuts them out if he has time; otherwise he lets the bees fix things their own way. As to the rest of the old colonies, they are allowed to build up for winter. If they gather any surplus it is in combs for extracted honey. Of course, this method does not prevent increase—that is, in numbers — altogether: it simply checks it. But in Mr. Burt's case he desires some increase, intending to establish an out-yard next season, for he now has 170 colonies in the one location. As to the bees fighting, he has no trouble, for they are pure Italians. He might in rare cases if they were hybrids.

THE HONEY-FLOW FOR 1894.

THE honey-flow, so far as reported, seems to be widely different in various localities. So far in Ohio—at least in our vicinity—we have had a good flow from basswood. Certain parts of York State and Pennsylvania report the same. As the letters are coming in day by day, about half report this as being the poorest of the poor seasons so far. The other half—especially those in the basswood regions—are jubilant over their fine crops of honey. In a few days we expect to send out statistical blanks to get more accurate information. It is a little too early yet to judge accurately of the season. But we know enough already to feel assured that a very large number of bee-keepers will get no surplus.

THOSE FIVE-BANDED BEES, AGAIN.

WE have been making some tours among apiaries a few miles from the Home of the Honey-bees, for the special purpose of learning in regard to the qualities of the so-called five-banded bees. So far as observed, we have found them to be excellent honey-gatherers, though we can not say that we consider them any better than the ordinary three-banded bees. They are certainly more nervous—at least, the average run of them—and the bees of some colonies of them will shoot like darts at the apiarist on the slighest provocation. Indeed, they remind us very much of our old Cyprians. But it is fair to say that there are some of these five-banded bees that appear to be as gentle as any, and equal to the very best, in working qualities. We hope the breeders of these bees will be careful to eliminate, so far as possible, their tendency toward viciousness, and preserve their good working qualities. To sum up,.the five-banded bees are beautiful, are excellent workers, are crosser than the average Italians, and not as hardy for our northern winters. This estimate is made upon the yellow-banded bees reared by different queen-breeders, and is as fair as we know how to make it. As Neighbor H. says, he can rear one kind of bees as well as another. So can we; and therefore, from a pecuniary point of view, we are not biased in our judgment.

THAT PECULIAR DEAD BROOD; NOT FOUL BROOD.

ABOUT this time of year we generally receive samples of brood of what purports to be foul brood. In fact, it resembles it in general characteristics, lacking two important symptoms; namely, ropiness and glue-pot odor. It seems to occur during warm weather; but usually, if let alone, it will disappear of itself. Two or three years ago we had a couple of cases of it in our yard; and it will also be remembered that we reported, at the time, the same malady in one of the apiaries of our neighbors. But it all disappeared, causing no trouble. It has reappeared this summer in one of our out-yards, and also in one of Neighbor H.'s. But we feel very certain that it will go off of itself. Perhaps some of you may have discovered the same thing. The *appearance* of this dead brood is identical to that of foul-brood—cells sunken, larvæ dead and shriveled up, varying in color from dark brown to a black; but if you discover no ropiness in the dead matter, or no odor, you may have no fears. As yet we do not know the cause of this peculiar disease. The fact that it comes during hot weather, in the midst of a heavy honey-flow, may put us on the track of the cause.

THOSE 4000 BASSWOODS BLOOMING, ETC.

BASSWOOD seems to be still holding out—at least, it is taking another spurt. In some recent trips south we found the trees were still in bloom, and the bees were humming upon them in great swarms. The bee-business is one that is rather uncertain nowadays when the sole dependence is on white clover. The latter is scarce everywhere this year; and but for the basswoods there would be but very little white honey to report, we fear. Of course, alsike has done nobly; but the patches of it are so limited in extent over the country, that, while individual apiarists secure quite large crops from it, all the alsike honey put together is only as a drop in the bucket in comparison with other white honey.

Later.—Since writing the foregoing, the bees are roaring on the basswoods heavier than ever. Indeed, in going to and fro in such great droves, they caused some of our employes to report swarming.

This morning, at 5 o'clock, we took a run down to the basswood orchard, and there we found the same kind of roar, but the bees did not have to go so far to get the honey. Examination showed that the nectar was glistening in tiny drops in many of the blossoms, and the bees were so wild with excitement that they apparently did not stop to clean the blossoms up dry, but simply hunted for big drops, and let the rest go. But what astonished us more than any thing else was, that on the south side, or on the side toward the home yard, not a single bee was either going or coming, indicating that the bees from the last-mentioned place got their honey from a nearer source. It would appear, then, that the home-yard bees seldom or never get any honey from the basswood orchard, although not more than 1¾ miles from the home yard, in a bee-line; hence the wisdom of establishing a yard in the orchard itself.

THE HOLTERMANN FAMILY.

IN our last issue, reference was made to a couple of fine half-tones that appeared in the May number of the *Canadian Bee Journal*, showing the members of the editor's family. Feeling sure that our readers—at least those who do not take the *Journal*—would like to see these same half-tones, we asked for the loan of the plates, prints of which appear herewith. Mr. Holtermann, although a comparatively young man, is one of the leading and influential bee-keepers of Canada. He has been secretary of N. A. B. K. A., and has been present at several of its meetings on this side of the line. When we know a man so well it is always interesting to know how the members of his family look; and therefore it affords us great pleasure to introduce them to you, so far as it is possible to do on paper.

MRS. R. F. HOLTERMANN AND CHILD.

R. F. HOLTERMANN, EDITOR CANADIAN BEE JOURNAL.

THOSE NAUGHTY SPACING-STRIPS.

QUITE a number are asking us why we do not nail a strip of wood of the right thickness, and in the right position, on the inside of the Dovetailed hive, so as to space the outside frame a bee-space from said side. We have been writing to one and all that they will find the strips an intolerable nuisance, just so sure as they put them on; and wherever we find a pair of them on we pull them off with a yank. The fact of the matter is, the outside frame should be shoved within a bee-space of the side of the hive; and this will leave just room enough to leave a bee-space on each side of the division-board on the opposite side. Now, then, when we desire to move a frame, or, better yet, a division-board, we simply shove the whole set of frames as far as they will go, over to one side, crowding the last frame for the time being clear up against the hive-side. This gives room enough to remove the division-board with ease. But suppose those naughty strips of wood are in, and you have big fingers; then you may have to worm away a good while before you can get the division-board out, which, as a rule, should be removed before any of the frames.

JUNIOR EDITORS OF THE CANADIAN BEE JOURNAL.

OURSELVES AND OUR NEIGHBORS

BY A. I. ROOT.

Gather not my soul with sinners, nor my life with bloody men: in whose hands is mischief, and their right hand is full of bribes.—Ps. 26:9, 10.

What I shall have to say this morning refers principally to the last half of the closing sentence of the text above—"Their right hand is full of bribes." It would seem that receiving bribes is not a new invention entirely, of modern days. Selfish men without principle have abounded since the world began; and they have been the trouble and the lament of all good men during all ages. At the present time I fear that many good people feel like settling back with a groan of discouragement, and saying, "Well, we just can't do any thing, any way." But that is not true. It is a suggestion of Satan, that we can not help the sin that constantly abounds. We can do a very great deal, and perhaps some of you know the remedy that I am going to suggest; and, in fact, it is the remedy the Bible suggests on almost every page—that is, make our own lives upright and pure; and then if we don't do any thing more, we shall at least stand a much better chance with other sinners, or worse sinners, if you choose. David said, "Then will I teach transgressors thy way, and sinners shall be converted unto thee." The word *then* refers to the time when God should have created in David himself a clean heart, etc.

Now, what shall we do with the bribes and corruption of our land? Why, in the first place we must take great care to mend every thing that has even the appearance of evil in our own lives in this very line; for I do believe a great part of us are at least indirectly encouraging this sort of thing. I wish you would read the whole of this 26th Psalm, and then read the one before it. Why! it is really plaintive, the intense earnestness with which David prays that he may be kept out of these things. He says, "O keep my soul, and deliver me; and let me not be ashamed." And he says again, "I will walk in mine integrity; redeem me, and be merciful unto me."

A little time back I spoke of the gambling mania. Well, the bribe mania goes hand in hand with it. Perhaps, however, men accept bribes in some sort of shape where they do not think of doing any thing that even savors of the gambling or bribe mania. Let me illustrate. Several times in my experience in hiring hands I have been told something like this: A man comes to the foreman of a certain room, and says, "Mr. A., if you will get Mr. Root to keep me through the dull season, when others are let go, I will give you a five-dollar bill." This man does not even plead his skill or ability; neither does he claim that it will be for Mr. Root's interest to retain him and let others go. The only point before him is *his* interest—his *self*-interest. Other men are poor; other men have large families. *He* has no thought of this at all; he simply wants to get ahead and crowd others back; and he offers the boss of the room five dollars if he will manage to give him a steady job. I do not know how he expects him to do it, but very likely by saying to his employer, "Mr. Root, when you are thinking about what men you will keep, and what ones you will let go, I think it would be to your interest to keep Mr. B." I do not know how far the boss of the room is expected to go. Perhaps, in view of the five dollars, he is expected to say, "Well, I think Mr. B. would work for your interest, would look after your property, and you would find it to your advantage to keep him rather than any of the others." If this latter be *true*, and there is no bribe in the whole affair, the transaction would be right and proper; but if, on the contrary, it is *not* true, or the boss of the room is like the man whom he is pleading for, working only for the *five dollars* he has in view, or for *self*-interest, why, then it is a terrible state of affairs. If the proprietor is a good sharp man there are two things that would stand in the way of the success of such a scheme. The foreman of a room who would lend himself to such a plan, or accept a bribe, is unworthy of his position and trust; and if he has secured the place of foreman he will probably lose it before long. You see, I know something about these things. Again, the man who offers five dollars or any other sum in this way is, as a rule, a poor workman; and the employer, if he is sharp, and looks after his business, would begin to be suspicious—that is, he would be suspicious to see a man recommended who, he was sure, was not deserving. I am sorry to say that this has been tried several times in our establishment. But no man ever got a place, that I know of, by any such trickery. He lowered himself, and lowered his money value, by making such an offer. In some government offices he might succeed; or where the proprietor was so well off that he did not need to look after his business. Should this meet the eye of the men who tried this sort of way to get employment, I hope they will believe me when I assure them that such a course not only destroys a man's self-respect, but it sinks him in the estimation of all good men. He can never prosper by such a course.

Again, a runner for a manufacturer of printing-inks offered the foreman of our printing-office some five or ten dollars if he would use his influence to have us buy all our inks of his house. I do not think he said any thing about the quality—in fact, that was a secondary matter. He would, if he could, get our trusty foreman to induce us to use a poor quality of ink at a high price, providing he was paid for so doing. Just think of it, friends—you hire a man to look after a certain department of your business—to use judgment, discretion, and wisdom in purchasing supplies. You pay him extra—that is, more than your other hands—for doing this. Suppose he should violate this trust reposed in him, and, instead of working for us, he should work against us, provided he could put money into *his own pocket*. I am glad to tell you that the boss in our printing-office promptly informed us of the questionable way in which this ink-house did business, or *tried* to do it. But it is not confined to manufacturers alone, this business of bribes. Suppose one neighbor says to another, "John, if you will use your influence to get Mr. B. to buy this horse I am trying to sell him, I will give you five dollars after the sale is made." Why, this thing is so common that some of you may smile at my simplicity. But, my good friends, whenever you do a thing of this kind, you are accepting a bribe. It is the same thing on a small scale that is being done by the government officers and by the police of our large cities, that is making such terrible havoc just now in business circles. If you profess to be an honest, square man, you lower your standard every time you become a party to any such transaction. How can a professing Christian listen to any such proposal? Perhaps you say, "Why, that is all right. You simply *hire out* to the man who has the horse to sell." You try to persuade your conscience that you are helping him along, just as you would help him get in his hay. Not a bit of it. If you help him out of a tight place in *haying time*, there is nothing about it that needs to be concealed. Suppose you go to the man who wants to buy the horse; and, after recommending said horse, and telling of his good qualities, and none of the bad ones, you add, "By the way, neighbor, perhaps I might mention to you that I am to have five dollars of the money if I succeed in inducing you to make the purchase." How would that sound? What would the would-be purchaser think of both of you if the truth got out? Shame on the man who will sell his good name, or a little bit of it, for a paltry five dollars! The Bohemian-oat swindle and thousands of other swindles have been spread and propagated in just this sort of way.

Perhaps a great part of my readers occupy some office of some sort. Most of us have a hand in public affairs. If you are not working for the government, you are working for your village or city corporations. You may be road-master or school-director in the country. The man who occupies such a place as this will be solicited, sooner or later, to use the authority put in his hands to serve self instead of the great public, or his neighbors and humanity. When I was on our schoolboard, an agent wanted to sell us something new in the way of blackboards. He had some little blackboards for family use. They were worth five or ten dollars apiece; and before he went away he promised each member of the board one of these little blackboards, to be used in his home, providing we would give him an order for blackboards for our union school. One of the members of our board gave him such a scathing rebuke that it seemed to me as if he ought to remember it for a long time. And let me say right here, that, in all my deal with the great wide world, the men who will accept a bribe are the exception; and I have seen a manly and honest refusal to be a party to any such schemes, a good many times, when I hardly expected it. There are *thousands* in our land who value the good of our people and the good of our nation so much *more* than self that a bribe would be out of the question. But, wait a bit. We sometimes accept bribes, even the best of us, without thinking of it. Since our labor strikes, there has been much said about the free-ticket system—the free tickets furnished by railroads to favored ones. I made up my mind years ago that I would not ask any favors of the railroads. Without asking, however, a pass was given me—a sort of complimentary one, in consideration of the large amount of business our enterprise had given the railroad. In one sense it seems a little hard to say that this was wrong. If a man has bought strawberries of you right through the season, paying you a high price when the first berries ripened, would there be any thing wrong in making him a present of a basket of some choice variety, in consideration of the money he had paid you through the season? Why, it would be only a pleasant and neighborly thing unless it might serve to establish a precedent for such things. It used to be more customary than it is now, to treat a friend or relative when he came to see you. We used to ask him to take a glass of beer. As the beer disappeared (as I hope it has disappeared all around you), lemonade or soda took its place; but I am afraid, friends, that even the treating to lemonade or soda tends to encourage the giving and receiving of bribes.

You have all met office-seekers. You know how they go to work to get your vote and influence. By the way, I wonder if there is a place where people are put into office by the voice of their neighbors because they think the *man* a fitting one, and not because he has gone around urging people to help him get said office. It was said to me recently, that no man got into office nowadays unless he *wanted* it and did considerable hard work to get it. Is this true in your neighborhood? I hope it is not. It certainly is not the best way. I do not care if you do say that it is the *only* way people can get office. All public offices should be filled by those whom the community at large decide to be the best person for the place, not by somebody whose principal recommendation is that he *wants* the place.

This is too big a subject for me just now. But somebody said to me yesterday, that when a man got a paying office nowadays it costs him a good deal of time and *money;* and that, after he is in office, he *must* have *some way* of getting back what he had invested in getting the office; and the way to do it was to look out for chances where he could get it back by favoring somebody else, instead of working for the people at large who support him and who pay the taxes. Is this true?

A word about getting office. I was asked recently to recommend a person for a certain place. I knew he was competent to fill the place, and there did not seem to be any reason why I should not favor him. In fact, I was a little afraid somebody not as competent, and not as good a man, might get it. My position happened to be such that, may be, I turned the scale in his favor. Now, I can not tell whether it was before this talk or afterward that he asked me how we were getting along for coal during the strike. I told him we had a little left, but that we were beginning to feel considerably uneasy. "Well," said he, "I knew something about it, and a relation said he guessed he could get you a car if he managed the thing a little, and I think the car was sent along, and will probably be along on your track this afternoon." In a few hours, there the car was, right in the nick of time. It is said that one neighborly act deserves another.

You see, I have given you a glimpse of all phases of this business of helping somebody who has helped you, or whom you expect to help you. Some of the illustrations we could scarcely call unfair or wrong; others are grievously wrong, or grievous wrongs grow out of them. I have told about the book agent who wanted to give me a book so that he could put my name at the head of his list. I would not have any book in that way. It is bribery, without question; and if a man has influence in his community, he ought to be *all the more* careful how he *lends* that influence to any one.

Let me touch upon something else that, while it is not exactly bribery, does place selfish interests before the interests of the public at large. A great many times, express companies carry packages in a roundabout way to their destination in order to "haul" the goods as far as possible on their own lines. Let me explain. We have just been getting beautiful large strawberries from friend Stehle, of Marietta, O., before ours were ripe. We had an arrangement made so they came through in a few hours, and were bright and fresh, even during extremely hot weather. The last shipment, however, fell into the hands of another express company. Of course, friend Stehle expected they would, at the right point, hand it over to the other company, so as to make the shortest cut to Medina. Instead of that, they carried it away around so as to go all the way on their own line, keeping it out over night besides. The berries were badly jolted, and a much higher express charge was made out, simply that said company might have all the "hauling," as they term it. I have made a protest, but they have not replied yet. If the charge I am making against them is unjust I shall be glad to correct it. Now, is it true that express and railroad companies have been in the habit of doing things like this—damaging a customer, damaging the goods, and then making a larger price than to have taken the shortest cut? Once more:

During these dull times for railroads they are working hard to get business. They are sending out agents to secure freight over their respective lines, if they can. But suppose one of these agents should find out who does the "routing" for a manufacturing establishment. By the word "routing" I mean the man whose business it is to decide what line of railway shall carry the goods. Now, suppose the railroad should send a man to this routing clerk, and offer him, for his individual benefit, a free ticket to California, or some other place, providing he will mark all goods over *their* road whenever it is possible to do so; and suppose, in consideration of this free ticket, this routing-clerk sends goods away off out of the way, making the customers of the firm extra expense and delay, simply because he has been *bribed* to do this sort of work. I presume there are some who will excuse such a transaction by saying it is done every day. God forbid! and God *does* forbid that a man shall prosper, and be happy, who damages by extra expense and delay those who have confidence enough in him, or the firm which he serves, to intrust their money and their business to his care. If it is true that such things are common, then it follows that there are still *better* chances for honest men, and those who are faithful to their post, and to the great wide world, no matter what influence may be brought to bear. You may urge that the shipping-clerk who does this, simply throws a little more expense on people whom he does not know, and that everybody who does business must expect to meet this sort of thing. Just wait a bit right here. We are under just as much obligation to be honest and true to the great world whom we do *not* know, as to friends and relatives; and that wonderful passage in the Scriptures, where the Master said, "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me," declares it; and the man who swindles or wrongs the great public whom he does *not* know is swindling and wronging Christ Jesus himself; for the Bible teaches most emphatically that self and selfish interests are opposed to Christ Jesus. The Christian loves humanity, even as Christ Jesus loved it and died for it; and the man who tries to be right and fair to the great mass of humanity whom he does *not* know is really being right and fair to Christ Jesus himself, and to the great God above; and he who deliberately and unfeelingly swindles the masses, especially the poor laboring masses, the widows and orphans, and those who earn their daily bread by the sweat of their face—the one who steals their slight earnings in the ways I have mentioned, that he may get a little money himself—a five-dollar bill or a railroad ticket to California, or any thing else, is cheating the Lord Jesus Christ, the Savior of the world: for he himself has most emphatically so stated it. He is *robbing God*, and a day of reckoning will *surely* come, sooner or later.

GLEANINGS is one of my best friends in bee-keeping. I don't think I could make a success without it. This has been the best season for honey that I have ever known in this locality.

Cat Creek, Ga., June 12. J. B. GRIFFIN.

HIGH PRESSURE GARDENING

AMERICAN PEARL ONIONS.

We commenced shipping these to Cleveland in the month of June. So far they have sold at a commission house at $1.80 per bushel. They are put in crates holding a third of a bushel. We commenced shipping them before they were fully grown. We find that, by picking out those where the tops have dropped over, and laying them in the sun a day or two, they can be cleaned off so as to be firm and solid, and very nice looking. Those that seem to be growing, we let stand. This 7th day of July I hold in my hand a couple that measure 4 inches in diameter, and they are about as handsome as any thing in the shape of an onion can be. This is the fourth year that we have successfully raised these onions. The sets are planted in September on a piece of ground vacated by early crops. They commence to grow as soon as we have fall rains, and make quite a growth during the fall. Of course, we cultivate them and keep them free from weeds, and this is about all there is to it—no mulching of any sort. When the ground becomes sufficiently dry in the spring, we run a wheel-hoe through them and pull out all the weeds that make their appearance. But the onions soon cover the ground so that very little attention or care is needed. For bunch onions, nothing can be nicer; but it seems almost wicked to pull onions an inch in diameter, when they would be three or four inches in diameter if simply left standing a few weeks longer. The quality of the onions, I believe, is equal to any; and they seem to bring the highest price of any thing in the onion line ever put on the market. This year we have grown successfully some beautiful sets by sowing the seed in March so thickly that they can not make large-sized onions. Some of the sets are dry enough to harvest now. We have raised the same sort of onion by setting out onion-plants instead of onion-sets. The seed for the plants was sown quite thickly in May and June, giving plants large enough to set out in September, at the same time we put out the sets. There were, however, more failures among the plants. If you have a firm, well-ripened set to plant out in September, if dry weather comes on, the sets keep in the ground firm and solid until it is wet enough for it to start to grow. An onion-plant, however, put out in September would not stand a severe hot dry spell as well as the set. For this reason, planting out sets seems to be the safer way. If the sets are much more than three-fourths of an inch in diameter, they are apt to send up seed-stalks in the spring; but if these seed-stalks are broken off down close to the onion, just as soon as you can see them starting, you will get a nice large onion. Some of our boys simply broke off the top of the seed-stalk; but this does not seem to answer as well. From my standpoint of view, and judging from my own experience, I do not see why raising American Pearl onions is not destined to be a great industry. Perhaps I should say that our best success has been on our creek-bottom ground. The most trouble we have ever had was when the season was so exceedingly wet that the onions were flooded with water. While low ground seems to be best for these onions, great care should be taken to avoid having them flooded.

WHITE MULTIPLIERS.

These begin to mature just a little later than the American Pearl. The largest of them will probably sell in the market at about the same price, and although they are not as handsome, because where they crowd each other in the hill they are more or less pressed out of shape. But this onion is very easily raised, and I have never seen any sort of seed-stalk start in any of them. They simply keep growing nice solid onions; and I do not know of any onions in the world that will keep like the White Multiplier, unless it is the shallots. As nearly as I can understand it, the method of culture is like this: Gather your crop. and sort out those large enough for market. The others may be plantin September, exactly as we do the sets of the American Pearl, or you can hold them over and plant them in the spring. Ours planted in the fall have done rather better than those kept over till spring; therefore, where it can be done I should advise fall planting. After harvesting, with appropriate sieves sort those too small for market. in different sizes. The smallest will probably produce large onions the next season; but all large and medium-sized ones will divide up—one onion making a dozen or more. If they are to be kept for any length of time I would store them in a dry loft until freezing weather comes; then they can be kept over winter like any other onions, only they are very much less trouble. You can keep them through the winter until time to put them out in the spring, with scarcely any sending out a sprout; or they can be kept through the winter for table use, in the same way. They are so solid, firm, and dry, that a bushel of multipliers ought to be worth a good deal more than a bushel of the ordinary onions more or less soft and sprouted. They seem to be a pretty safe thing to have, and a pretty nice thing too. I fear, however, there will be complaint because there are so many small ones. An objection has been made that they do not yield largely. Now, my experience is that they yield pretty fairly. One onion, on an average, produces from 12 to 20 fold. Of course, the small onions will cost more than planting black seed. But, wait a bit.

SHALLOTS.

These are almost exactly like the Multipliers, mentioned above, except that they do send up seed-stalks and produce seed; that is, some of the onions send up seed-stalks. They produce black seed, not sets. I am told that this black seed will produce sets, and that these sets behave themselves like the bottom-sets, or the smaller shallots. Now, the shallot is still harder and firmer than the Multiplier onion. Why, they are just little beauties in that respect. They keep solid, and without sprouting, almost anywhere. Sending up a seed-stalk and producing seed is an *advantage*, because the expense of seed per acre will be so much less. Again, it is a *dis*advantage; because, if you want good-sized shallots for market. and not for seed, you would have to pull off the seed-stalks. May be I am not quite right in this thing, because you see it is a little complicated; but I am studying the habits of these interesting members of the onion family, and I think I shall know all about it pretty soon. I feel sure there is money in both shallots and multipliers. If you are curious in the matter, see the long article on "English Multipliers," in our issue for Feb. 15. 1894; also look up "Shallots" and "Multipliers" in the index for last year.

THE INDUSTRY GOOSEBERRY.

We have been picking ours; and as we sell the ordinary ones at 7 and 8 cts. a quart, I thought the Industries ought to bring 10. The first customer who saw them took the whole crop. Then we felt bad because we did not charge 15 cts. instead of 10. May be you think that looks avaricious; but the berries really looked more like watermelons than gooseberries. They were not *quite* as *large* as watermelons, it is true; but a good many of them were like watermelons in shape. They were oblong, and beautifully mottled. Why in the world does not somebody have an acre of Industry gooseberries? I suppose that one reason is, that the plants are not as strong and robust as the other kinds. We have had ours two or three years; and, with the same treatment we give the others, they have made comparatively small growth. But I tell you they are delicious. By the way, who will tell us more about the Industry gooseberry? Who has raised them on a large scale, and what do they bring in the market?

A STORY WITH A MORAL.

Somebody told me that one of my small boys, about the size of those you saw in the picture, had sold $3.40 worth of radishes from a five-cent paper of Chartier radish seed. I asked him about it, and he said it was true. He peddled the radishes around town himself. They were so much nicer than any I had raised that he sold them without any trouble. I was pretty sure there was an important truth back of it somewhere, for we have much trouble in raising nice radishes on our ground that has been so heavily manured with stable manure. They are crooked and wormy, and we get very few fine-looking ones. Yes, we have not had any nice ones, even on our swamp-muck ground this present season. Well, the truth I wanted to get at was this: The radishes were raised on a piece of ground where an old stable had stood a good many years. Now, friends, is there any such place on your premises? or are you "cultivating" an old stable of that sort to enable the coming generations to raise crops of radishes, etc.?

THE GANDY STRAWBERRY DEFENDED, ETC.

Friend Root:—I have just read "Our Strawberry Report" in GLEANINGS. The Gandy is not only a choice but also a very profitable variety with me. A single acre netted me over $400 last season, and fully as much this. I sold $150 worth from this acre yesterday in Jackson, 18 miles distant. Of course. much of the profit is due to its season. Haverland and Warfield are extra fine. I am much pleased with Timbrell, Gillespie, Leader, Lovett, Iowa Beauty, and Middlefield. Bederwood is immense. I expect great things of the Marshall. It is large, of extra fine flavor. Epping, Bissel, and Mary, are very promising. I set over 40 varieties this spring, but more of the Gandy, Timbrell, and Beverley, than of the others. I am much interested in the new Loudon Red raspberry, and expect to see it at its home, Janesville, Wis., in a few days, if the trains are not all tied up. I bought a dozen of Mr. Gault's raspberry last spring, which are doing well. They could not help it, with such plants and the care Mr. Gault takes in packing.

C. N. FLANSBURGH.

Leslie, Mich., July 4, 1894.

Friend F., you have given me just the kind of testimony I wanted to get. Prof. Green, of our Experiment Station, is a very observing man, and a very careful one; and that is why I value his opinion so highly in regard to new fruits; but he was evidently a little too severe on the Gandy. It may be, however, that your locality is especially favorable; but I do believe, with the acquaintance I have already had with the Gandy. that I could make it pay in our locality. I would put the plants on very rich ground; thin them out to a pretty good distance, then mulch heavily to keep them back, and have the whole patch on a north hillside, or on the north side of a heavy piece of timber, in order that they might not dry up at the time strawberries usually dry up. Then when everybody else is getting small and dried-up berries, I would give them the finest of the season. If I had received your letter three days sooner I would not have plowed under the last of our Gandies. Just before we covered them with manure, preparatory to turning them under, I went through the patch, and found, where the foliage was rank enough to protect them from the heat, great handsome berries, of perfect shape and color, hard and firm to handle; and I really believe they were the most delicious in flavor of any strawberry I ever tasted. Unlike the Parker Earle, it did not undertake to mature more berries than it could manage nicely, and it made a perfect, finished piece of work of the very last berry of the season. Another thing, we could put out an acre of Gandies without having any fuss to have every third or fourth row for pollenizer.

TOBACCO-DUST FOR BUGS — AN ADVERSE REPORT.

I covered the ground in and around my melon-hills with the tobacco-dust, and the bugs burrowed right through it and destroyed every one of them. My faith in it is away below par.

E. P. ALDRIDGE.

Franklin Square, O., June 8.

[Why, friend A., I am greatly astonished at such a report. It is the first one of the kind we have ever received. Perhaps the weather is very dry, and it needs rain to make the tobacco-dust do its work. Let us hear from you after a more extended experience.]

NOTES OF TRAVEL

BY A. I. ROOT.

ON THE WHEEL.

Perhaps I should explain that I am now riding a Victor Racer instead of a Victor Flyer, as I was doing a few weeks ago. As a matter of course, I find the last wheel a wonderful improvement over all its predecessors, and Constance calls me fickle-minded because I am so ready to drop each wheel, when I thought there was nothing in the world like it, for each new purchase. As wheels are getting to be so common, perhaps it may be worth while to give my reasons for these changes. The Flyer weighed 29 lbs., and the Racer only 24; and I have been for some time thinking that it was folly for me to ride a wheel strong enough to carry a man weighing 200 lbs., when I hardly weigh 130. You may say the difference of 5 lbs. would hardly be noticed; but when you come to making trips of 30 or 40 miles in 3 or 4 hours, you will begin to discover that every *ounce* counts. Ernest was afraid it would hardly be safe for a man of my age to ride a wheel weighing less than about 30 lbs.; but I have tested pretty thoroughly my 24-lb. wheel, and I never want any thing heavier after this. When he told me, a year ago, that I would eventually discard brake, mud-guards, package-carrier, and even the tool-box, in my general riding, I could hardly believe it, especially in regard to the brake. I thought I *must* have a brake for going down hill. But now I find myself going down almost every hill to be found on any well-traveled road, without any brake, and, in fact, a good deal of the time I am urging the wheel *forward* instead of holding it back.

Last week I rode 32 miles, and did not get started till 20 minutes past 4. In order to reach home before dark I got into a way of riding down one hill fast enough to accumulate momentum to carry me to the top of the next; and where a hill went down just before the next one went up, I did this almost invariably; and in this way I made as good speed up and down hills, or nearly as good, as on level ground. I commenced by testing the wheel gradually, to see what it would stand, and how it behaved. Very likely this is dangerous business, unless you have a good strong wheel made upon honor. In going down at the immense speed that one accumulates, by the time you reach the foot of the hill, if any thing should break so as to throw the rider to the ground, it would result, likely, in broken bones if nothing worse; therefore it behooves the rider to examine his wheel often, and see that every thing is tight and in good repair. I hardly need say that the clothing worn, like the wheel, should be of such material as to dispense with every ounce that is not needed. If you carry a pocket-knife, let it be a light one, and let your money be paper, except what is needed to make change. If riding in hot weather, your cap or hat should be ventilated; starched shirts and collars should be exchanged for a woolen sweater, and light shoes should take the place of boots; and in order to save soiling the lower part of the legs of your trowsers you should either wear knee-breeches or let your stockings come over your pants-legs. So much for a preface.

A few days ago a gentleman was looking over our grounds, and he asked several questions about my raspberries. His face seemed familiar, and I felt ashamed to ask his name. By the way, nothing troubles me much more of late than the way in which I forget the names of people whom I know quite well. I suppose it is because visitors are here almost every day. I remember the face, but I can not call the name; and sometimes I fear the good friends must feel hurt when I have to explain to them that I can not for the minute call them by name. It was so with this friend. In my talk with him I soon discovered that he knew a good deal more about raspberries than I did; and when he told me a little more about his different varieties and different fields at home I decided to pay him a visit, as he lives only about ten miles away. Next morning, with the aid of my wheel, I announced myself at his beautiful home, before breakfast. In fact, it was before 6 o'clock. I was on my way to our Ohio Experiment Station; and when he found it out he expressed a wish to go with me, and said his horse and buggy were at my service if I would consent to give up my wheel. As the day proved to be an exceedingly hot and dusty one, I felt quite satisfied to do so, especially as it gave me the privilege of having such a bright and enthusiastic fruit-grower as Prof. Grannis for a traveling companion. He is so modest a man that I did not discover that he was a "professor" at all until I had ridden by his side some ten miles or more; and he did not tell me so, even then. I wish to give you a little of this friend's history, for it may prove to be helpful, and on that ground I think he will excuse me for what I am about to say.

Friend Grannis has taught school all his life, or, rather, he has been principal of an academy the greater part of his life. He told me that he and his family lived about as other people do, year after year, letting expenses take up all the income, until he was getting to be middle-aged. He is a Christian man, and, of course, wants to make his life count, not only for his own sake and that of his family, but for his friends' and neighbors'. At the same time physicians admonished him that his health would be broken down if he kept on teaching. What was to be done? He said he had heard people speak of A. I. Root, and of what he was doing in gardening and in growing small fruits. He visited our place, and what he saw was simply an astonishment to him. He could not understand how it was that other people did not go to work and get results such as he saw on our grounds, and on some of the poorest land in Medina Co. He pondered the matter, and made a huge resolve that, God helping him, the rest of his life should show forth something different.

While we were talking, the horse was stopped; and we went through a little bit of woods, and one of those poor worthless hills—that is, it used to be poor and worthless—was revealed to my gaze. It was covered from foot to summit with the most luxuriant growth of raspberries—all the different kinds—that ever met my eye; and the fruit, which was almost ripe, was in quantity and size beyond any thing I had ever beheld. It was indeed an oasis in the wilderness.*

I shall not have space to-day to tell you of my visit to the Experiment Station. On the way we talked raspberries, you may be sure. I asked him how much competition he had in the business, and he said he had almost none at all.

On the way home I happened to look off across a hill, not very far from his residence, and I broke forth:

"Why, look here, friend Grannis, you told me you had almost no competition. If that raspberry-patch over there is not competition 'right smart,' I should like to know what it is. Why, that man's ranch is taken care of just as well as your own; and I declare" (this latter was said as we came a little nearer) "I am afraid it is a *better* plantation than even your own."

He began laughing at my first remark; and as my enthusiasm warmed up he laughed still harder. When I turned around in surprise to know what he meant he replied, "Why, Mr. Root, that also is my plantation. Didn't I tell tell you I had 20 acres of raspberries all together? Now, I do not mean to say that I own this *land*. It belongs to a relative. But the crop of berries on it is mine."

A few minutes later, as I was preparing to step out of the buggy and get hold of my beloved wheel, he concluded with something like this:

"Mr. Root, this day has been a happy moment that I have for a long time looked forward to. Several years ago I had planned, in imagination, inviting you to come down to see *my* work after I had succeeded; and I had planned, also, of telling you what I am going to tell you now. What I have accomplished, and what you have seen to-day, I owe to *you*. You have been my teacher and my inspiration; and the best part of it all is, that you did not know it. I have been around, and, when you were not busy, I have asked you questions, and you have courteously given me all the information you could, and then—forgot all about it. I say this for your encouragement. Do not get weary. Your untiring enthusiasm in cultivating the soil, in searching out God's gifts, will bear fruit—in fact, it *is* bearing fruit in places where you know nothing of it; and such teaching as yours, and that of others like you, is to be the salvation of your country."

Yesterday, July 10, my wheel and I made a raid through the onion-farms of Medina Co. I found that the most if not all of them are threatened seriously with the onion-midge. The symptoms are, a chalky, sickly color at the tops, with more or less curling up. This whitish color is caused by the surface of the leaves being gnawed all over by a minute aphis. You can see them with the naked eye, only by spreading the tops where the new growth starts and letting the sun shine down in. You will see them down there at work, so small as to look like fine grayish powder. They eat over the surface of the leaf when it is young and green. One of the professors in our Experiment Station has visited the plantations, and they have decided that the only feasible remedies are tobacco tea or dilute carbolic acid. They think the latter will be cheaper—one part of carbolic acid to 100 parts of water, put on the onion-tops with the spray-pump. I find the onions in almost every garden, and even on our own grounds, affected in the same way. We can not tell yet how great the damage may be. As is usually the case, where there is a very strong rank growth the insect has less power to do serious injury. The enemy is not an entirely new thing, but it has never been so widespread, and in such numbers, as during this present season. The injury is done to the leaf when it first starts out of the center of the top. Our American Pearl escaped the insect entirely by being mature, and part of them on the market, almost before the midge got to work.

THE BEST THING IN THE WORLD.

At the great national Christian Endeavor convention held in Cleveland, O., July 11—15, Gov. McKinley said something like the following: "I love the Endeavorers because they are building Christian character; and just at this stage of human progress there is no currency in the whole wide world in such universal demand as Christian character." The attendance was even beyond the most sanguine expectations. The great building, provided especially for the meeting, was speedily filled. Then the great tent, holding 10,000 more, was almost as speedily packed, with ever so many on the outside looking through the openings. Then an overflow meeting filled one of the largest churches, and then still another was filled likewise. The special feature of the meeting was the courteous, kindly Christian spirit that one met on every hand. Hundreds of white-capped ushers were ready to answer any question, and sometimes they would even approach you and say, "Friend, is there any thing you would like to know?" or, "Can we direct you anywhere you want to go?" There was no cigar smoke — at least, none coming from any who wore the Endeavor badge. There were no uncourteous words; and while at one time the air in the tent was hot, almost to suffocation, it was wonderful to see people bear it with such smiling good nature. Where mistakes and misunderstandings happened, there was no grumbling. Beautiful ice-water by the barrelful stood at every turn; and a small boy, who belonged to the Endeavorers, manipulated the faucet so as to avoid spattering the nicely dressed girls, and also to avoid making a mudhole around the drinking-place. Nice pies, sandwiches, lemonade, and such like refreshments, were on hand at every turn, and at very low prices for the quality. Notwithstanding the great labor-strike at the time, not an individual in that great crowd had reason to complain that he lacked; and I did not even hear of exorbitant prices anywhere. It was worth going a long way to see a city decorated—stores, residences, and all public places—as Cleveland was with the Endeavor colors. I attended only one day, riding in on my wheel in the morning, and back home at night, making nearly 60 miles, besides taking in the convention.

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*At a second visit paid to friend Grannis, I found that, on the 9th of July, he picked and sold 40 bushels at $2.50 per bushel. Sixty pickers were at work at once, and 25 bushels were sold to people who came there with pans and pails from the surrounding country. You know how much Terry has urged that a man should make it a business to have some certain specialty; and I do believe that the right man, with the right sort of soil, will do better to raise raspberries alone, selling plants as well as berries, than to try to raise and keep posted clear up to the times on all of the other small fruits. Friend Grannis has under cultivation almost all the raspberries prominent before the world. This gravelly side-hill is simply an astonishment. The raspberry foliage on both the old and new was the brightest, most luxuriant, and thrifty, of any thing I have seen, and yet he is not using one particle of manure. He says that gravelly knoll has been under cultivation thirty or forty years, and has given fair crops of wheat year after year, without a particle of stable manure, chemical fertilizers, or even turning under clover or timothy. How many such gravelly hills are there scattered over our land? and are they being utilized? Prof. Grannis' address is Lodi, Medina, Co., O.

SPECIAL NOTICES FROM BUSINESS MANAGER

CHOICE COMB HONEY WANTED.

We have a customer wanting to buy choice comb honey in 1-lb. sections, in large quantities. Those having it to offer should write at once to this office, stating about what quantity they have to sell, and the lowest price at which they will sell outright for cash, already cased and crated for shipment. It must grade choice to fancy.

HONEY MARKET.

We are receiving from Medina Co. producers, as we go to press, a nice lot of choice honey, both comb and extracted. The flow of basswood honey has been abundant here, and most of the honey secured is from that source.

Choice white extracted, 60-lb. cans, per lb.,	9 cts.
" " " 2 " " "	8½ "
In lots of 2 cases or more, " "	8 "
Choice white comb honey, 24 lb. cases,	17 "
" " " " 100 or more,	16 "

White-sage extracted, last year's crop, two 60-lb. cans to the case, at 8c per lb.; 2 cases or more, 7½c.

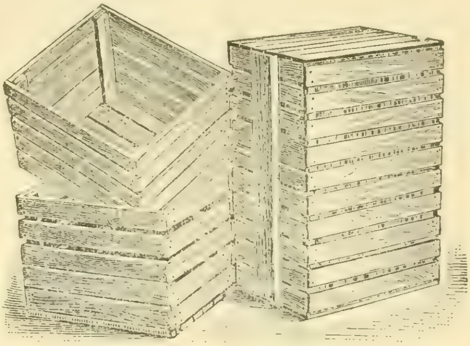
ONION-SETS READY FOR MARKET.

New Egyptian (or Winter) onion-sets ready for market, per quart, 5 cts.; peck, 35 cts.; bushel, $1.00. These may be planted now any time where early crops are taken off. The sooner you get them into the ground, the larger will be your early onions next spring.

Extra Early American Pearl onion-sets—quart, 35 cts.; peck, $2.25. I have never tried planting these earlier than the first of September, and I do not know what the result will be from planting them now. But I am going to try it. If we do not have rain, the sets would lie in the ground without starting, until rain comes. If we do have rain they might make such a growth this fall as to trouble us more by trying to grow seed-stalks in the spring. If any of these onion-sets are wanted by mail, add 10 cts. extra for postage and packing.

Our White Multipliers are also ripe, and ready to gather. Price, per pint, 10 cts.; quart, 15 cts.; peck, $1.00; bushel, $3.50. This is the price of the small sizes generally used for planting. Larger sizes, suitable for pickles or table use, half the above prices. The large sizes, if planted out now, will, if we have rain, split up into a great number of small ones yet, this fall. Please notice, you need not fear to plant the multipliers now, because they *never* send up seed-stalks—at least, I have never found a single seed-stalk in a whole field of them. They just keep increasing like potatoes; and I am inclined to think you can get two crops in a season—one in the spring and one in the fall—that is, when we have plenty of rain. If you wish to increase your stock rapidly you can certainly do it by separating the cluster of onions; and if this is done early enough so that each separate onion gets well rooted, I feel sure they will stand the winter safely. In fact, all the above onions mentioned, winter well, or at least they do in our locality, without any protection and without any injury. We can also furnish white shallots at twice the price of the multipliers. I have never had an opportunity of trying them over winter, so I do not know whether they are as hardy in our locality as the multipliers or not. The multipliers and the shallots, I feel sure, are going to be an acquisition for extra nice onions, with but very little trouble.

BUSHEL BOXES.



The above cut shows our new-style *all-slatted bushel box*. We have two other styles; one has slatted bottom and sides with solid ends in three pieces called the *slatted bushel box*. The other has solid ends and close bottom and sides, and is bound with galvanized iron and called the *galvanized bound box*. These boxes were devised by T. B. Terry for handling potatoes, for which purpose nothing could be handier. The potatoes are picked up into the boxes in the field and left in them till sold. Other crops, such as cucumbers, tomatoes, and apples are being handled in these same boxes. They are of such a size that two go crosswise in an ordinary wagon-box. Outside measure is 14¼x16⅞x12½ deep, and they hold a bushel of potatoes level full so they can be piled one upon another. The above cut shows two *all-slatted* boxes nailed up, and a bundle of 15 alongside; 13 of the 15 are in the flat, packed inside the other two, and nails of the proper kinds are included. The *slatted* and *galvanized bound* boxes are put up in the same way, except there are only 12 in a package instead of 15. Each package weighs about 85 to 90 lbs.

PRICE LIST.

All-slatted bushel box, per crate of 15..........	$1 50
Slatted bushel box, per crate of 12..............	1 50
Galvanized bound bushel box, per crate of 12....	2 10

In lots of ten crates, 5 per cent discount will be deducted. Price each, nailed, 15, 18, and 22 cents, respectively. A 20-page pamphlet called Handling Farm Produce, telling all about these boxes, mailed free on application.

Cash for Beeswax!

Will pay 23c per lb. cash, or 26c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 30c per lb., or 32c for *best selected wax*. *Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio.

Queens! Queens!

Now ready by return mail.

Bred in full colonies from the best honey-gathering strains in the country. All queens warranted purely mated, and safe arrival guaranteed. I have three distinct strains—golden yellow and dark leather-colored Italians, also Albinos.

Tested, each	$1.50
Tested, per ½ doz	7.50
Warranted, each	.75
Warranted, per ½ doz	4.00
Warranted, per doz	7.50

Send for 44-page descriptive catalogue.

W. W. CARY, Colrain, Mass.

Golden Italian Queens ✻ ✻ ✻ ✻ ✻ ✻ ✻ By Return Mail.

Untested, 60 cts. Breeders, the *very* best, $1.50. These are daughters of one of Doolittle's best breeders and are very yellow—most of them *yellower* than *gold*. Large and prolific. Safe delivery. Money order office, Decatur.

Cleveland Bros., Stamper, Newton Co., Miss.

Will you please mention GLEANINGS?

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds

W. Atlee Burpee & Co., Philadelphia, Pa.

Imported Carniolans, bred in 1893, $5 each; tested 1894 Carniolans in June, $2; bred from imported queens producing only gray bees. Untested, May, $1. Foreign orders, $6, $3, and $2. Safe arrival at any postoffice in the world.

MRS. FRANK BENTON, Charlton Heights, Md

Bees and Queens.

I am now prepared to fill all orders on short notice at the following low prices:

Untested queen	$ 75
6 untested	4 00
1 1-frame nucleus.	1 00
1 3-frame nucleus.	2 50
Bees by the pound	75
1 to 5 colonies	6 00

Queens wanted with nucleus, add price.

E. A. HARRIS, No. Petersburg, Renss Co., N. Y.

Tested Queens,

Raised last fall from my choice Italian stock, yellow and unsurpassed workers,

75 cts.

Ready to ship now. Hybrids, 25 cts.

J. A. GREEN, Ottawa, Ill.

World's Fair Medal

Awarded my *Foundation*. Send for *free samples*. Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free* Illustrated Price List of every thing needed in the apiary.

M. H. Hunt.

Bell Branch, Mich.

TESTED ITALIAN QUEENS, $1.00 each; Select tested, $1.50; untested, 65 cts. Two-frame nucleus, with tested queen, $2 00; with untested queen, $1 50. Queens ready April 1.

Stewart & Cooper, Quebeck, Tenn.

Golden Wyandottes.

No better birds in America. Cockerel, $5 00. Trio, $7.00. Eggs, $2.00 per setting.

E. D. Keeney, Arcade, N. Y.

BBB'S! If you keep *BEES*, subscribe for the **Progressive Bee-keeper**, a journal devoted to Bees, Honey, and kindred industries. *50 cts. per year.* Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address

LEAHY MFG. CO., HIGGINSVILLE, MO.

Golden Italian Queens.

½ doz. untested queens	$4 00
1 doz. untested queens	8 00
Fine queens for breeding purposes	3 00

Sample of bees upon application. I can please you. Send a trial order.

J. F. MICHAEL,
German, Darke Co., O.

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my *Golden Italians.* They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. *Sections, $2. per M.* Dovetailed hives way down.

CHAS. D. DUVALL, Spencerville, Md.

Italian Bees and Queens

Ready in May. Queens, $1.00; bees by the lb., $1.00; 1-frame nucleus, $1.25; 2-frame, $2.25. Also Barred P. R. eggs for setting, 15 for $1.00.

Mrs. A. A. Simpson, Swarts, Pa.

STRONG, FULL COLONIES

of Pure Italian Bees, in Root's new Dovetailed hive, after June 1, only $4.00 each.

N. A. KNAPP, Rochester, Lorain Co., O.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

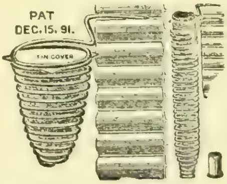
J. VAN DEUSEN & SONS,

12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

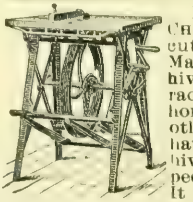
TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis.

Control Your Swarms, Requeen, &c.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. 12 Cell-protectors, 60c; 100, $3. 12 Cages, $1.00; 100, $5, by mail. Circular free. Address **N. D. WEST, Middleburgh, Scho. Co., N. Y.** Sold also by all the leading supply-dealers.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.

eoitf Please mention this paper

FOLDING

DEALER (to producer): "We can not handle comb honey unless put up in cartons. We must make an attractive show of goods, which will not get broken and leak."

We print as desired. All colors in stock.

Our prices bring us the trade. Goods packed flat, and shipped everywhere. Write for samples, stating quantity wanted.

WHITNEY & CO., Leominster, Mass.

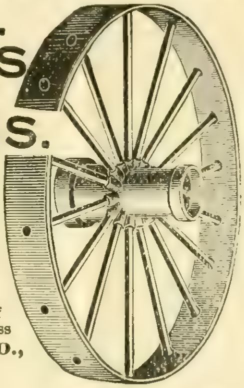
BOXES

☞In responding to this advertisement mention GLEANINGS

TESTED ITALIAN QUEENS, 75 Cts.

J. C. WHEELER, PLANO, ILL.

METAL WHEELS for your WAGONS.



Any size you want, 20 to 56 in high Tires 1 to 8 in wide—hubs to fit any axle. Saves Cost many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires Catl'g free Address

EMPIRE MFG. CO.,
Quincy, Ill.

WALTER S. POUDER,
162 Mass. Ave. Indianapolis, Ind.

SUPPLIES Standard Goods—Popular Prices—Catalogue Free.

"BUSY BEES"

A book telling how to manage them—10 cts. in stamps; or free to those sending names of 5 bee-keepers

SECTIONS CHEAP!

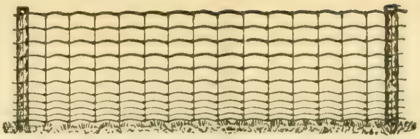
Until sold, we will sell the sections listed below in quantities of 500 or more at $1 50 per thousand for creams, and $1.00 per thousand for No. 2. All 4¼ x 4¼ sections, open two sides.

41,000 2	inch cream.	37,000 2	inch No. 2.
47,000 1¾	" "	91,000 1 15/16	" "
116,000 1⅞	" "	20,000 1⅞	" "
134,000 7 to ft.	"	87,000 1 13/16	" "

253,000 7 to ft. No. 2.

PAGE & KEITH, NEW LONDON, WIS.

☞In responding to this advertisement mention GLEANINGS



THE LATEST PUZZLE—FREE

How can a wire fence stand without posts? We will send free to any address, a photo engraving of a long section of our Park fence, confining live deer and elk, and not a sign of a post to be seen. Everybody knows that the Page has been "out of sight" of all competitors for years, but did not realize that it could pose as a "postless" fence.

Send for proof.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

Mother Bees.

If you wish the best of queens, or mother bees, send me your orders. Untested queens, 3 or 5 band, 75c each; $4.25 for 6, or $8.00 per dozen. Tested 3-band queens, $1.50 each; fine 3-band breeders, thoroughly tested, the *best*, $5.00 each; straight 5-band breeders, faultless queens, $10.00 each. Root's goods, Dadant's foundation, and Bingham smokers.

Jennie Atchley, Beeville, Bee Co., Tex.

☞In responding to this advertisement mention GLEANINGS.

Bees and Supplies

Always on hand. Send for circular.

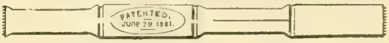
I. J. Stringham, 105 Park Place, N. Y.

Golden Untested 65 cts. each; 6 for $3 50; 12 for $6 50. Tested, **Queens** $1 00 each. Fine prolific breeding queens, $2.50 to $4 00. To parties who have not tried my strain of Italians I will send one golden Italian queen for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

Do Not Order

Until you have written us for prices on the "*Boss*" *One-Piece Section.*



Also D T. Hives, Shipping-crates, and other supplies.

We have just completed a large addition to our factory, which doubles our floor-room, and therefore we are in better shape than ever to fill orders on short notice. Write for price list.

J. FORNCROOK & CO.,

Watertown, Wis., Jan. 1, 1894. 1-3-5tfd

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds

W. Atlee Burpee & Co., Philadelphia, Pa.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

FULL LINE OF

BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

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CONVENTION NOTICES.

TO THE BEE KEEPERS OF NORTH AMERICA.

The North American Bee keepers' Association was organized in December, 1870, with the avowed object of "promoting the interests of bee culture throughout North America." All who are familiar with its work know, and its published proceedings also show, that it has adhered to this purpose, and has contributed as much as any similar society in the world to the spread of a knowledge of practical and scientific apiculture. Reviews, translations, and citations from these proceedings appear in the apiarian journals of all European countries. Much has in this way been done by this society toward giving to the American system of apiculture the recognition which its great merits justly entitle it to receive.

APICULTURE PROGRESSING, AND THE SOCIETY FLOURISHING.

The association itself was never in a more flourishing condition than at present, having reached at the last meeting the highest membership it has ever possessed. But the remarkable progress made by apiculture in the United States and Canada within the memory of many who are still among the active members of this society—in fact the development of this industry until it has become one of considerable national importance—makes it certain, when we consider the wide fields yet unoccupied, that still greater things may be expected. If all who are interested in this pursuit, and are proud of the rank which the apiculture of America holds, are willing to assist the objects of this association to the extent at least of becoming members and retaining continuous membership, results not merely gratifying to all, but substantial benefits to every member will follow. It is not a trade-union nor a socialistic society to promote strikes and boycotting, but a peaceful joining of scattered forces which by numbers, interest, and enthusiasm, shall command respect and recognition from those whose work in life has not made them familiar with the extent and needs of this industry. The field is wide enough for all, and there should be no holding back through a spirit dictated by a feeling that one's own advancement is hindered by the well-earned progress of his fellow-man. Each should have, instead, a just pride in the knowledge that he has contributed to the general advancement.

WHAT THE SOCIETY CAN DO.

The North American Bee-keepers' Association might aid in obtaining National and State legislation favorable to the interests of apiculture, both in securing and promoting attention to this branch at experiment stations, and in checking the sale of adulterated apiarian products. Should this body be composed permanently (as it certainly ought to be) of three-fourths or more of the intelligent apiarists of the country, its opinions, resolutions, and requests would carry with them far more weight and influence than they do at present. The time has come, in fact, when apiculture, having arrived at the dignity of a distinct pursuit, and having enlisted the attention of some 300,000 of our citizens, has within itself forces worthy of much consideration—forces that should be united in order to do more effective work. Every bee-keeper, therefore, whose eye falls on these lines is personally requested to ally himself with the members of our society whether he can be present at the regular meeting or not. The proceedings, published in pamphlet form, are sent to all who pay the annual membership fee, and the names of all members appear in the printed list.

The next annual convention will be held at Saint Joseph, Mo., Oct. 16, 17, 18, 1894. To avoid confusion at the time of the meeting, and just before, members or those who wish to become such are requested to forward their dues, $1.00 at the earliest date possible, to the treasurer of the Association, Mr. George W. York, 56 Fifth Ave., Chicago, Ill., who will return a neat membership-card. Those who attend the convention are requested to present membership-cards and secure badges. State or local apiarian societies paying an annual affiliation fee of $5.00 receive medals to be given to their own members as prizes; and delegates appointed by these societies to attend the conventions of the North American receive membership-cards and badges free.

For further information address FRANK BENTON,
Sec. North American Bee-keepers' Association,
Washington, D. C.

The Self-Teaching Music Chart

Teaches notes, chords, accompaniments, all about piano and organ playing, so plain that any child can understand it. A great thing for agents. Circular free. *J. A. ROE, Union City, Ind.*

For Sale or Rent. Farm containing 56 acres. 42 under cultivation; 1½ acres of strawberries; 1½ acres of blackberries; 2 acres of orchard; running water the year around; good buildings, and 175 colonies of bees in good condition. *Box 419, Lima, O.*

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange yellow Italian queens, or nuclei of bees, for foundation or 1-lb. sections.
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

WANTED.—To exchange golden queens for raspberry, blackberry, and strawberry plants.
J. F. MICHAEL, German, Darke Co., O.

WANTED.—To exchange one registered Poland China Gilt for one single-shot or repeating rifle, or offers. W. C. GATHRIGHT, Cameron, Tex.

WANTED.—Parties having extracted honey for sale to send to my address sample and price. Give name of kind of honey. W. T. ZINK,
Nichols, Greene Co., Mo.

WANTED.—To exchange 7 or 8 colonies Italian bees in Dovetailed hives, empty hives, etc., for any thing useful. W. S. DORN BLASER,
Higginsville, Mo.

WANTED.—To exchange one new and several extra good second-hand bicycles, and 500 60-lb. screw-cap cans, for choice comb or extracted honey, Mail sample. J. A. BUCHANAN & SON,
Holliday's Cove, W. Va.

WANTED.—To exchange Italian bees, nuclei or full colonies, for clover seed, small-fruit plants, or farm tools. JOHN BURR, Braceville, Ill.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge. After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Black and hybrid queens for sale at 20 and 25 cts. each; 5 for $1.00. J. W. BACON,
Waterloo, Seneca Co., N. Y.

Queens by Return Mail.

Hardy Northern-bred Gray Carniolans and 5-banded Golden Italians, queens bred in separate apiaries, by **return mail**, at the following prices:

1 untested queen,	65	1 tested queen,	- $1.25
6 " "	$3.50	1 select tested,	- 1.75

Bee-keeping friends, give our queens a trial. We **guarantee** them to give **satisfaction**. Don't fail to give the Gray Carniolans a trial. With us, they prove to be the **best** of workers, the **hardiest**, and the **gentlest** bees in the world.

Reference, A. I. Root.

F. A. LOCKHART & CO.,
Lake George, N. Y.

☞ In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—Demand is slow for all grades and kinds of honey. A few cases of new received. The range of prices is 4½@6½c for extracted. Fancy white, 1-lb. comb, 15@16c; amber, 12@13; dark, 10. Beeswax, 22.

HAMBLIN & BEARSS,
July 20. Kansas City, Mo.

CHICAGO.—*Honey.*—Demand for honey at this season of the year restricted. We look for an active demand for new comb honey that is of good quality and put up in desirable packages. We shall hold our first receipts at 16c per lb., unless otherwise instructed. Extracted honey selling, depending upon quality, at 5@6 per lb. Beeswax, 25.

S. T. FISH & CO.,
July 19. 189 South Water St., Chicago, Ill.

BUFFALO.—*Honey.*—It is rather too early to ship honey to market as yet; there is too much small fruit for sauce, etc. There is a very small demand for extra choice honey at 13@14; stray sales at 15. There are various qualities and sizes of packages at from 9 to 12 cts. When the season starts in in earnest, we should be pleased to hear from all our old friends.

BATTERSON & CO.,
July 18. Buffalo, N. Y.

DETROIT.—*Honey.*—There is no new comb honey offered yet, and the last year's crop is all sold. We think there will be a good demand for the coming crop. Market will probably open at 15c for best white. Extracted, 6@7; some new Southern has sold for 6. Beeswax easier at 25@26.

M. H HUNT,
July 19. Bell Branch, Mich.

ALBANY.—*Honey.*—A number of producers have written desiring to send us a lot of extracted honey, but as there is scarcely any demand for it before Oct 1st it would only be in our way if sent now. We can sell a limited amount of new comb honey in August. Have received none as yet, consequently can give no quotations from actual sales.

CHAS. MCCULLOCH,
July 20. Albany, N. Y.

SAN FRANCISCO.—*Honey.*—The honey crop is nearly a total failure in California, and hardly any extracted honey will be produced at all. We quote extracted honey, nominally: Light amber, 6@6½; amber, 5@5½. We can not quote white honey at all. One-lb frame comb scarce at 13@14. Beeswax scarce at 26@27.

SCHACHT, LEMCKE & STEINER,
July 17. San Francisco, Cal.

ST. LOUIS.—*Honey.*—At present there is very little demand for honey. Choice white clover comb in 1-lb. sections is selling slowly at 13@14 Choice extracted, in cans, in a small way, 4½@5; in barrels, 3½@4. Beeswax in good demand at 26½ for prime. Any thing aside from choice honey is impossible to sell, as no one seems to want goods of this class.

WESTCOTT COM. CO.,
July 12. St. Louis, Mo.

CINCINNATI.—*Honey.*—Demand in general is slow for all kinds of honey, but we have made large sales lately of choice white comb honey of last year's crop, cleaning out our market. We quote 12@14 for choice white comb honey. There is a slow demand for extracted honey at 4@6. Demand is fair for beeswax at 20@23 for good to choice yellow.

CHAS. F. MUTH & SON,
July 18. Cincinnati, O.

BOSTON.—*Honey.*—We quote you our market on 1-lb. comb honey at 14@16; extracted honey at 5@6. Demand light. Beeswax wanted; none on hand.

E. E. BLAKE & CO.,
July 19. Boston, Mass.

ST. LOUIS.—*Honey.*—There is very little change. Inquiries are few. No change in prices. Prime beeswax, 25.

D. G. TUTT GROCER CO.,
July 19. St. Louis, Mo.

CLEVELAND.—*Honey.*—Honey sales slow; No. 1 white at 12½@13; No. 2, 10. Buyers are not anxious at these prices. Beeswax, 25.

WILLIAMS BROS.,
July 18. 80 & 82 Broadway, Cleveland, O.

KANSAS CITY.—*Honey.*—Some small shipments of new comb honey on the market, selling at 15 to 16c for No. 1 white comb. Not much demand for extracted yet. Beeswax, 22@25.

CLEMONS, MASON & CO.,
July 19. Kansas City, Mo.

CHICAGO.—*Honey.*—A few little lots of the new crop have come, and the white comb has sold at 16c where it was in good order. As yet there is no surplus. Extracted brings 5@6. Beeswax, yellow, 25; dark, 20.

R. A. BURNETT & CO.,
July 18. 163 So. Water St., Chicago, Ill.

FOR SALE.—We have 10,000 lbs. of the finest of alfalfa extracted honey that we will sell at 7c, f. o. b. cars here. Samples by mail.

AIKIN BROTHERS, Loveland, Colo.

I have some nice horsemint honey for sale at 6c by the barrel. W. C. GATHRIGHT, Cameron, Tex.

Alfalfa honey, very white, "dead ripe," thick and rich; $8.25 for two 60-lb. cans. Address

OLIVER FOSTER, Las Animas, Colo.
(Late of Mt. Vernon, Iowa.)

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

EDWIN ROBINSON. *W. M. GRAY.*
ESTABLISHED 1866.

Robinson & Gray,
SUCCESSORS TO
B. F. Southwick & Co.,
Foreign and Domestic Fruits, Canned Goods.
47 & 48 South Market and 5 & 6 Chatham Streets.
Headquarters for Vermont Shipments of White-Clover Honey.

It will be the endeavor of the new firm to meet the wishes of their patrons in the future as the late firm has in the past.

Thanking you for the many past favors received by the late firm, we hope to be favored with a liberal share of your patronage in the future.

All orders and inquiries by mail or otherwise will receive prompt attention. Very respectfully,

Boston, April 2, 1894. **ROBINSON & GRAY.**

☞In responding to this advertisement mention GLEANINGS.

QUEENS. Tested, $1.00; 6 for $5. Warranted, 75c; 3 for $2. Breeders, the very best, $2.00. Straight 5-band, $3. Also apples, Ben Davis, Mammoth Black Twig, Arkansas Black, all leading varieties; whole root only; trees 10c each. On orders of 100 I will pay freight.

W. H. LAWS, Lavaca, Seb. Co., Ark.

Italian Queens Cheap.

My queens are as good as the best. Untested, 65c each; 3 for $1.75; 6 for $3.25. Tested, $1.25. Select tested, yellow to the tips, breeders, $1.50. Virgins, 25c. Safe arrival guaranteed.

G. E. DAWSON, CARLISLE, ARK.

Golden Wyandottes.

No better birds in America. Cockerel, $5.00. Trio, $7.00. Eggs, $2.00 per setting.

E. D. Keeney, Arcade, N. Y.

30 tested Italian queens, the very best 3 and 5 banded, at 75c each, by return mail.

C. H. STEWART, Sparta, Tenn.

Feeding Back Honey to secure the completion of unfinished sections can be made very profitable if rightly managed during the hot weather of July and August. In "ADVANCED BEE CULTURE" may be found complete instructions regarding the selection and preparation of colonies, preparation of the feed, manipulation necessary to secure the rapid capping of the combs, time for removing the honey, and how to manage if a few sections in a case are not quite complete; in short, all of the "kinks" that have been learned from years of experience and the "feeding back" of tons of honey.

Price of the book, 50 cts.; the Review one year, and the book, for $1.25; or the Review the remainder of the year, and the book, for only 75 cts. Stamps taken, either U. S. or Canadian.

Queens nice tested ones of this year's rearing I can furnish at $1.00 each, or with the Review one year, for $1 75. Untested queens at 75 cts. each, or one with the Review one year for $1.50. Write for prices on larger quantities.

W. Z. HUTCHINSON, Flint, Mich.

Daughters of one of *Doolittle's* best 5-banded breeders, mated to the choicest drones from Jennie Atchley's 5-banded strain, thereby securing a direct cross with the best 5-banded stock obtainable. Untested, 50c; 10 or more, 40c; tested, 75c; selected extra yellow, $1.00. Safe delivery and satisfaction. Money-order office, Monongah. P. O. address, Worthington, W. Va. **L. H. ROBEY.**

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's strain of Italians,** the result of 15 years' careful breeding.

Dr. O. S. Brown, Londonderry, O., says:

I bought queens of you in 1891, and they have shown themselves to be of the best for honey-gathering.

Warranted queens, 80c each; 3 for $2.00. Tested queens, $1.00 each. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 666 queens. Circular free. eitf

J. P. MOORE, Morgan, Pendleton Co., Ky.

90 PER CENT PURE

Business Queens.

On account of a few hybrid drones that may be flying in the air this year I will sell my all-golden-to-tip queens, untested, unwarranted, but am satisfied 90 per cent are purely mated and will produce 4 and 5 banded bees, at 50 cts. apiece. Order some, test them, and be convinced.

WM. A. SELSER, Wyncote, Pa.

☞In responding to this advertisement mention Gleanings.

Queens Yellow to the tip • • •

Mated with

• • • Drones Yellow all over.

Queen mothers from an entirely different strain from the drones, hence a direct cross. None but selected drones allowed to fly from the most desirable colonies. I am 4 or 5 miles from any other bees, therefore I can practically control the mating of my queens. Nine years as a queen specialist, always taking care to secure direct crosses, has convinced me that the golden Italians have no superiors. Queens sent by return mail if requested. Safe arrival guaranteed, and every queen warranted in every respect. Price 75c each; $8.00 per doz.

James Wood, North Prescott, Mass.

By Return Mail. Italian queens from one of Doolittle's very best breeders—yellow to tip. Bees most excellent workers. Untested, 55c; 6 for $3.00; 12 for $5.50. Tested, $1.00. Mismated, 35c; 3 for $1.00. Safe delivery and satisfaction guaranteed.

H. G. QUIRIN, Bellevue, Ohio.

$3 each, IMPORTED ITALIAN QUEENS, reared in '94. Untested from them, 50c each.

W. C. Frazier, Atlantic, Iowa.

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my *Golden Italians.* They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. ***Sections, $2. per M.*** Dovetailed hives way down.

CHAS. D. DUVALL, Spencerville, Md.

FREE—To New Subscribers, a Choice of these BEE-BOOKS

Newman's "Bees and Honey."

This book treats of the management of an apiary for pleasure and profit. Over 200 pages, and over 200 illustrations. The book for beginners or the more advanced. Send $1.00 for the **American Bee Journal 1 year** (weekly) and get the book Free. The "Bee Journal" has 32 pages—established in 1861. Sample Free.

"Scientific Queen - Rearing."

By G. M. Doolittle (portrait shown herewith) Tells how the very best Queen-Bees are reared in accord with Nature's way. 176 pages. $1 00 for this book and "Bee Journal" one year. Address.

GEORGE W. YORK & CO.
56 Fifth Avenue, - Chicago, Ill.

MONEY RETURNED to all buying **PORTER BEE ESCAPES** not satisfied after testing them. Prominent bee-keepers everywhere use and highly recommend them as **the best.** No others received a World's Fair award. Testimonials, etc., free. Prices: Each, postpaid with directions, 20 cts.; per doz. $2.25. Order from your dealer, or the mnfrs., **R. & E. C. PORTER, LEWISTOWN, ILL.**

13 Carloads of Supplies.

This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially

FOR THE WEST.

Joseph Nysewander, Des Moines, Ia.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY.

PUBLISHED BY A. I. ROOT.

$1.00 PER YEAR. MEDINA OHIO

Vol. XXII. AUG. 1, 1894. No. 15.

STRAY STRAWS

FROM DR. C. C. MILLER.

That apron of A. C. N., p. 584, is good, but Emma prefers ticking. She tried the oilcloth, and couldn't stand the smell.

I fancy I see Doolittle loading his gun when he reads that tariff article, p. 574. [We fancy we hear the doctor say, "Sick 'em, Doolittle." —Ed.]

The *American Bee Journal* has started a medical page, "Our Doctor's Hints, by F. L. Peiro, M. D." It's good, and dished up in excellent style.

If it were not for Ernest chuckling over it, I'd mention that I find the narrow ends of the latest Hoffman frames ever so much nicer to handle than the old broad ones.

This week, for the first time, I saw in a normal colony two cells partly filled with pollen, and an egg laid on the pollen. Good colony, good queen, and plenty of empty cells. Didn't suppose such a thing possible.

The *Bienen-Vater* reports a closely watched case in which a queen on her wedding-flight was absent from 3 to 6 o'clock. When her brood hatched they were half Italians, and the nearest Italians were 4½ miles away.

That Holtermann family, p. 590, is nice. I'd just like to get hold of those little chicks. Now let's have the Root family. If you can't get them on one page, take three pages. [We'll see what the women-folks say.—Ed.]

A libelous editorial in *A. B. J.* gives the whole of my wearing apparel as "hat, shirt, overalls, shoes." Notwithstanding the failure of the honey crop, I still luxuriate in stockings. [Perhaps Bro. York was thinking of Sockless Jerry.—Ed.]

I was anxious about A. I. Root while he was riding a Flyer, for fear he'd break his neck. Now that he has given up the Flyer and taken to a Racer I feel anxious about his morals. Racing and gambling are likely to go together. [Yes, he's been racing with good horses—on the road—and 54 years old at that.—Ed.]

The *Illustrierte Bienenzeitung* quotes an editorial in *American Bee Journal* about A B C, and adds, "The book contains every thing necessary in the science of bee culture, arranged alphabetically, and is splendidly illustrated throughout.

Somnambulist, in *Progressive*, thinks I'm arguing for loose bottoms on the sly, and quotes four Straws giving instructions that can be followed only with loose bottom-boards. Never thought of it in that light, honest Injun; I didn't, Sommy.

Sweet clover stands up bravely through the terrific drouth. While grass is burned brown as in winter, sweet clover is bright and green, the bees working on it all day long, except in the morning, when perhaps they work on cucumbers.

What ails the season? It's always warmer and earlier at Medina than here; but July 11 you were having a tremendous yield from linden, and it was all out of bloom here four days earlier. Did they get through sooner because so few?

July 17 I was hunting around for a cool spot, with the thermometer at 103—just right for hatching chickens—and thinking I was having a pretty hot time of it. Gleanings came at noon; and when I read Mrs. Atchley's story on p. 581 I was glad I lived in a cool place.

"I am looking forward with pleasant anticipation to the time when my own basswood orchard of about 500 trees, planted with my own hands, will be yielding up the precious sweet to the bees."—*Allen Pringle, in Practical Bee-keeper.* So there's another man for me to envy besides A. I. Root.

Sweet clover that was cut early, and sprung up again, seems more fully visited by the bees than the big stalks that were left untouched. Where people persist in cutting it down on the roadside, leaving all other weeds standing, it would be a good thing to get it cut before any sign of blossom.

FOR YEARS I've gone around during the honey season with the neck-band of my shirt black from my bee-veil. This year the lower edge of my veil is white for an inch or so, and I don't have to wear a dirty-looking shirt on Monday. [Do you mean to say that you tuck your veil down between the neck and shirt-band?—ED.]

PRESIDENT ABBOTT maintains that bees move eggs. To a queenless black colony without eggs he gave an outside comb of Italian eggs. In 3 or 4 days these eggs were gone, and a lot of eggs in center of hive, also a queen-cell from which an Italian queen issued. He asks, "Where did they come from, if bees never move eggs?"

"THE BEE-BUSINESS is one that is rather uncertain nowadays, when the sole dependence is white clover."—GLEANINGS, p. 589. I read that over carefully, read it slowly and sadly, but could think of no argument in reply. The saloon business is more certain, but some features of it I don't like, so I'll stick to the bees a while longer.

FRIEND ROOT, on p. 592 you think, and think wisely, that an office should be filled by the best man, not the man that works hardest for the place. The question is, which man do *you vote* for? When the day comes that good men vote for none but good men, we shall no longer have to blush for the rascally way they do things at Washington.

IN REPLY to a query in *A. B. J.*, opinion is divided between a ¼-inch space and some kind of cloth as a covering for sections. Many have changed from the cloth to the space. I think few have changed the other way. [The principal reason why cloths are used at all is because the bee-spaces are too large, and the old-fashioned thin top-bars render them almost a necessity. With thick top-bars and proper bee-spaces, or with proper bee-spaces over the sections, a cloth or quilt is worse than useless. —ED.]

I LAUGHED, Ernest, when I read what you say on p. 584. I used to lug around a tool-box with a variety of tools; but nowadays it has been laid aside, and I seldom have more than veil, smoker, and screwdriver. What do you do with the knife? Pry frames with it? And is it better than a screwdriver? [The knife-handle was used to pry between the frames, and is better than the screwdriver, because it is ever ready—in the pocket; but now the big nail spoken of elsewhere is better, and can be carried in the leadpencil pocket.—ED.]

"THE DIVISION-BOARD, as a rule, should be removed before any of the frames."—GLEANINGS, p. 590. Just what I believed and practiced for years; but I'm getting to think it's easier to take the frame out first. [Use a ten-penny wire nail or spike, and then see if the division-board does not come out easier first. With the head of this very handy tool, catch hold of the top rail projecting over the division-board, and it will come easy. Afterward, use the other end of the nail to pry apart the frames. Try it and see how much better it is than a screwdriver. The nail is cheap; and if you lose it there are lots more for a few cents. Last week we blundered on to this handy tool, and now have abandoned the use of both screwdriver and knife.—ED.]

GENERAL CORRESPONDENCE

APIARY OF H. LATHROP.

A CHEAP BEE-CELLAR.

By H. Lathrop.

Mr. Root:—I send you by this mail two pictures showing a part of my apiary. They were both taken by Samuel Rockstead, of Albany, Wis., a master of this kind of work. One was taken in April, before the trees came out in leaf. This one shows my bee-cellar, which was described some years ago in GLEANINGS. It is very much like Doolittle's, except that only oak timbers and slabs are used in place of stone. In this picture may also be seen myself and family, consisting of wife and two children.

This apiary is, in some respects, better located than any other I have ever seen. It is in a valley, well sheltered; and early in the spring, when bees will fly out at the peril of life to procure water and pollen, they can get both just over the fence to the north, among the poplar-trees. It is very seldom that I have any thing like a case of spring dwindling, even when the bees come out of winter quarters in a weak condition. The trees seen in the May picture are young oaks which grew from sprouts, and were trimmed up each year. They furnish just shade enough.

Browntown, Wis., June 16.

[We selected for engraving, as you will see, a view showing the bee-cellar, which, taken in connection with the descriptive matter, will give a pretty fair idea of how to construct a cheap and serviceable bee-cellar. It might be well to call attention to the fact that Doolittle's original cellar was covered with slabs and dirt, the whole covered with boards so laid as to shed water and keep the dirt dry; but on account of the slabs supporting the dirt becoming rotten in time, he subsequently adopted stone flagging, and is using it to-day. We have no doubt that, for the locality of Mr. Lathrop, and many others in Wisconsin and Minnesota, a bee-cellar gives better results in wintering than double-walled packed hives on their sum-

mer stands. That being the case, it is important, even at this early date, to know how to construct a cellar that will give such results as that of Mr. Lathrop. The view of the apiary is interesting. It shows that the hives are evidently well painted, and in good repair. We presume that the little building beside the bee-house is the shop or honey-house.—Ed.]

HONEY TARIFFS.

INTERNATIONAL AMITY.

By Allen Pringle.

In the issue of Gleanings for April 1, pp. 264-6 and '7, Dr. Miller and Mr. P. H. Elwood both touch on the above subjects as between the United States and Canada. Dr. Miller says, "Canadian bee-keepers are looking with longing eyes in this direction"—that is, to the United States, as a honey market. Dr. Miller might be surprised to learn that, with the tariff-bars up high on both sides, much more United States honey is imported into Canada than Canadian honey into the United States. Dr. M. further says, that, while we Canadians are thus looking over there for a market, "England is at the same time kicking vigorously against our" (the United States) "sending any honey there." Isn't Dr. M. here making the mistake of calling a few British bee-keepers "England"? These few—with rather narrow views, it must be confessed—have been, it is true, making a clamor in the *British Bee Journal* to have United States honey shut out; but the *Journal* itself is making no such clamor, but has, on the contrary, properly rebuked the clamor; and the *Journal*, not the few dissatisfied ones, is certainly the proper representative of British bee-keepers, or "England," if you like.

The facetious doctor also asseverates that "that altitudinous Canuck, Pringle" (now, Mr. Editor, I shall call that Stray Straw blower of yours a short Dutch Yankee, just to match him), "worked hard to establish a market at the big show; and if his compatriots can't eat all the honey they can raise, I believe in giving them an open market on this side."

Now, that is good—very good. While I find myself differing with Dr. Miller every now and then, I agree with him most heartily on that point—not because I personally want or need the "open market" he is willing to give, as I can sell my honey at an excellent price at home and near home; but the principle of the thing is what I admire, and what I agree with, and what I have been advocating for years in Canada. The United States has a lot of knavish politicians and monopolists who are trying to persuade the people that the way to make them rich is to tax them—to tax them on what they sell and what they buy, on what they eat, drink, wear, and read. Canada has a lot of knavish politicians and monopolists who are doing exactly the same thing; and these two precious lots of knaves (they are not fools) have built and kept up a high Chinese tariff wall on both sides of the international line. Both walls ought to be razed to the ground, with not a single stone left standing on another! And they *will* be leveled, as sure as time goes on; for a battle against the laws of nature is sure to lose in the end. And so long as these commercial barricades remain, in defiance of social as well as economic law, there can be nothing like international amity, in the true sense, between the two nations. Let them, therefore, be broken down; and the nation that first sets itself about the work will be leading in the van of human progress.

It has often been a matter of amazement to me how intelligent people can be so readily misled—how the party knave and demagogue can bamboozle the people on this tariff question, especially the farmer and other producers who suffer the most. They slip a penny into one of his pockets, and that he sees and keeps his eye on; while out of the other pocket they pick a pound, and that he never notices. They draw his particular attention to the first part of the trick—the penny performance—but knavishly cover up the latter maneuver—the pound robbery; and the poor fool goes away chuckling over his penny when his pound is gone! The average Yankee prides himself on his native shrewdness; the average Canuck prides himself on his native common sense; the tariff *protectionist* knave dupes them both.

Mr. P. H. Elwood, in some issue of Gleanings, as indicated above, refers to the proposal in the Wilson bill to reduce the duty on honey, and strongly deprecates such a movement toward tariff reduction. Mr. Elwood is evidently a high-tariff protectionist; and as he is, I believe, a producer, he must be set down as one of those dupes above referred to. I regret to have to make such a classification. But Mr. Elwood need not feel bad about it. He has a lot of highly respectable company in his economic fallacies. Many good and intelligent people, no doubt, honestly believe that the selfish sophistries of the monopolist and protectionist are gospel truths. Common-sense people find it hard to account for such a fact; but I account for it in the same way that I account for the anomaly of the learned English judges (aye, and New England people too) of a century or two ago who sat solemnly and sapiently in their places on the bench and condemned "witches" to be burned, and Quakers to be hanged. These judges had been educated that way; and as they honestly believed in witchcraft and persecution "in the name of God," they thought they were doing just right, not only in burning so-called witches, but in hanging Quakers too, than whom there were no more exemplary citizens. Some people still believe in witchcraft, though physical science has chased the specter off the boards; some still believe in tariff protection, though political science has routed it too.

I take the position that the principle of extending special "protection" to a few citizens by the state (I care not whether these few citizens be manufacturers, bee-keepers, or what not), at the expense of the masses of the people, unjustly discriminating against them, is economically false and morally wrong, which no sophistry or specious and special pleading can make right.

One of my inalienable and natural rights as a citizen is the right to sell whatever useful thing I produce as the fruit of my labor, wherever and whenever I please, without let or hindrance, and to buy what I need wherever and of whomsoever I like, without let or hindrance—always paying my fair share of taxes to government to enable it to see that I, with every other citizen, am protected in the exercise of this and every other civil right. No government on earth has the right to lay hands on more of that product of mine than specified for the above purposes, either to put into its own coffers or into the coffers of its protégé, the specially favored citizen in the shape of a "protected" manufacturer, a "bloated monopolist," or any other man. If the above right to sell my products and buy my necessaries is not my right, and every citizen's right, will some protectionist kindly tell us why not, and give his reasons? And if any government has the right to lay its hands on more of my goods than above indicated (and that is what is certainly done by tariff protection), will the same wiseacre tell us why—will some moral philosopher give us the wherefores?

Years ago this question was asked me; viz., "How is it that you are advocating a principle against your own interests as a honey-producer? for if the duty is taken off United States honey coming into Canada, they will flood our market and you can not then get as much for your product as you do now." The answer was then, and is now, just this: "If any foreign producer of the United States or any other country can bring his honey here, 100 or 1000 miles, paying freight, insurance, etc., and can afford to sell my neighbors and customers *pure* honey, as good in quality as mine, at a price lower than I am charging them, then I say, Well done; welcome, stranger! you are the people's friend if not mine—you are either an abler man than I am, or more honest, or perhaps both." And I immediately begin to suspect that I myself am either "a round peg in a square hole" or I am charging my customers more for my product than I ought to charge them. No matter which way it is, the consumer ought not to be imposed upon and called upon to suffer on account either of my incompetency or dishonesty. If he ought, will some *restrictionist* again tell us why? If I can not sell at a living price at home as low as the aforesaid competitor, loaded, as he is, with disadvantages from which I am free, then I ought to get right out of the business and get into something else I am better fitted for.

There are 100 honey-consumers at least, to one honey-producer, with the same or a greater ratio elsewhere; and, I ask, should the hundred citizens be compelled to pay tribute to the one citizen, as they are compelled to do under the system of protection? And if they should, give us your reasons for that, by all means—good or bad, wise or otherwise, as the case may be. The logic will have a limp and the ethics a squint; but let us have it, or own up like men that you are wrong.

Mr. Elwood concludes his remarks about Canadian honey and the tariff as follows: "It may seem hard to our Canadian brethren to have a duty imposed upon their products; but *so long as they consent to have their foreign policy (war) dictated by rulers over the sea, secret enemies of our institutions*, they can hardly expect us to use our resources in such a way as to develop their strength." (Italics *not* mine.) This is hardly fair or fact. In the first place, it is a mistake to say or suppose that either the *people* of England or Canada are either "secret" or open enemies of the United States or her institutions. England, as a commercial nation, is certainly friendly to the United States—more so than to Canada; to hear which may surprise Mr. Elwood. Her capitalists have millions of money invested there. A portion of the aristocracy of England may be unfriendly to the United States; but I must remind Mr. Elwood that *they* are not England any more than the doctor's few bee-keepers. The people—not the aristocracy, nor even the throne—are the power in England to-day. The House of Commons is in fact, if not in form, supreme, and *they* represent the people. Goldwin Smith, himself a patriotic and loyal Englishman, says, in the last number of the *North American Review*, "The monarchy" (English) "has practically ceased to exist as a political force, and dwindled to a social apex." That is the true state of the case. The English people are England, and they are not enemies of the United States. Republicanism is coming in England surely, and not very slowly.

Nor are the Canadian people enemies of the United States or her institutions. A few rabid partisan politicians and newspapers may be unfriendly (with more bark than bite, however); but I must again remind our American friends that these parties are neither Canada nor the Canadian people. It looks hardly likely that the country is your enemy which has a million of her good citizens among you—not anarchists, fomenting disturbance, like your European foreign element, but law-abiding, trustworthy, capable, and industrious. No, we are not your enemies, but your friends, in the great brotherhood of man in general, and the brotherhood of the Anglo-Saxon race in particular, cultivating the arts of peace and good will.

Selby, Ont., Can.

P. S.—With the exception of a passage or two, the above was written in April last, and sent to GLEANINGS; but for some reason it never reached that office. It has been re-written, because, when the loss was ascertained, the editor intimated his desire to have the article, and I also felt that the nature of the subject would justify me in going through it again, especially as I am now here with a little leisure on my hands in Uncle Sam's dominions, having started for Mexico, but obliged to postpone the visit on account of the excessive heat. A. P.

New York, July 18.

CALIFORNIA ECHOES.

By Rambler.

If there were a demand for comb honey only, there would probably be fewer bee-keepers, as it is so easy to extract, you know.

In some portions of California there are great areas of mustard. Those localities, I understand, are yielding a modicum of honey.

I recently passed through Saugus, and found an awful dry country. No wonder bee-keepers thereabouts have a discouraged tone to their writings.

To take skunk odor out of clothing, fumigate thoroughly with burnt coffee. That's the way Prof. Cook recommends. He has been there with his Sunday clothes on, and knows.

The efforts to hold an extra session of the State Association at San Francisco, during the mid-winter fair, failed, partly from the poor prospects for honey, and partly from the sudden withdrawal of low rates by the railroad.

It is a good thing, perhaps, for us to have an occasional off year. We shall have no anxiety over the putting of our product upon a market where there is no demand. See what Muth says in relation thereto in a recent issue of GLEANINGS.

We hear now and then prominent bee-keepers, who have heretofore worked their apiaries only for extracted honey, speaking strongly in favor of working for comb honey. Perhaps Harbison was right when he took such a stand against extracted honey.

Mexico would be an attractive field for the apiarist but for the duty on honey. Harbison entertained the idea of organizing a company to work the field so largely as to send honey by the shipload to foreign countries. The scheme is feasible, even at this day.

Mr. Searles, of Riverside, increases his colonies by division. A piece of burlap is placed between the extracting-super and brood-chamber of a strong colony. The super is provided with an entrance; and when the young queen is hatched, the super is set upon a new stand.

The city fathers of Los Angeles are about to submit to the people several new city ordinances, among which there is one prohibiting the keeping of bees in the city limits. There is some stir among the bee-keepers, who reside in the city, against it; with what result will be seen later.

HONEY-DEW HONEY.

A PURE-FOOD LAW; ANALYSIS OF HONEY-DEW HONEY.

By Prof. A. J. Cook.

As will be remembered, when I was up at the Arrowhead Springs apiary in April, Mr. Brodbeck, the proprietor, told me that he secured much late honey last fall from a peculiar parasitic vine which I at once recognized, as he showed it to me, to be "golden-thread," or dodder, a species of *Cuscuta*. This interesting threadlike plant takes root, like other plants, runs up, and twines about other plants for a support, then breaks its connection with the earth, and lives as a parasite upon its host. It is very common in Southern California, and is seen everywhere twining like a tangle of golden thread about herbs, shrubs, and even trees. When Mr. Brodbeck told me about his honey I thought at once of honey-dew, and even said to him that I supposed dodder bloomed earlier. In this last opinion I am sustained by facts—at least, I find dodder now in full bloom, both in the valleys and canyons. When Mr. Rees Powell, of Redlands, sent me the suspected honey which he said was produced in August and September, I at once thought of Mr. Brodbeck's honey, and sent at once and got a sample. The two samples were apparently identical. They are amber-colored, rather pleasant, and reminded me at once of honey-dew honey which I have often sampled in Michigan. Mr. Powell sold his honey to Mr. B. F. Brooks, of Riverside, Cal. Mr. Brooks sent it east, and it was condemned—or at least suspected—as an adulterated article. Mr. Powell asked me to make a full investigation, and asked for a report in GLEANINGS. This honey was produced near Banning, in Millard's Canyon. Up to July 26, 1893, the honey was light and excellent; then it changed, getting worse and worse. The bees kept at work on the honey-dew until Oct. 1. Mr. Powell says that most of the honey came from oak, but that many trees, including hemlock and pine, were visited by bees. I am inclined to think that Mr. Brodbeck's bees got their nectar from the host plants of the dodder, and not from the golden-thread itself. I am very sure that aphides were the source of the honey-dew in every case. It is a matter of much importance, and in future we must determine the truth and the whole truth in the matter.

I sent the honey to Dr. Wiley, of Washington, and have just received the following report:

Serial No. 13,131.

Polarization at 28° - - -	—3 04
Glucose as dextrose, - - -	66.52
Total solids, - - - - -	84 37
Water, - - - - - -	15 63
Ash, - - - - - -	1.07

This analysis shows conclusively that this is no adulteration. The polarization shows that it could not have been adulterated with commercial glucose. Like No. 55 of the samples I sent to Washington in 1892, it will be seen that the ash is abnormally abundant. One of the important results of the previous analyses was the determination of a rule by which honey-dew honey may be distinguished from honey adulterated with glucose. Now that our chemists can surely detect adulteration, why should we not all move in a solid body for the passage of a United States law, something like that of the Paddock pure-food bill? and then with the Bee-keepers' Union as a mighty power to enforce law, we can surely stop the whole nefarious work of honey adulteration.

Claremont, Cal., June 13. A. J. COOK.

[Yes, indeed, Prof. Cook, we ought to move in a solid body for the passage of a United States law—something like that of the Paddock pure-food bill. The Paddock bill would have gone through but for the moneyed influence, we fear, of those who are engaged in this adulterating business—in adulterating foods of all kinds, and putting a false label upon them. —ED.]

POLLENATION OF PEAR-FLOWERS.

TESTIMONY FROM A FRUIT-PAPER.

I send by this mail a marked copy of *Smith's Fruit Farmer*, containing an article that I thought might be available for the symposium on "Bees and Fruit." Articles like these, coming from high authorities, who are not particularly interested in bees, I think will have much more weight than the same article if written by one interested from a bee-keeper's standpoint.

Bluffton, Mo., July 11. S. E. MILLER.

[We have space for only the summary, which, as Mr. Miller says, coming from a source where there is certainly no partiality toward the bees, is more valuable.—ED.]

The following conclusions are, it is thought, fully warranted from the evidence which has been given, and doubtless many who read this will recall observations in practical orcharding which give further support.

1. Many of the common varieties of pears require cross-pollenation, being partially or wholly incapable of setting fruit when limited to their own pollen.

2. Some varieties are capable of self-fertilization.

3. Cross-pollenation is not accomplished by applying pollen from another tree of the same grafted variety, but is secured by using pollen from one tree of a distinct horticultural variety; i. e., which has grown from a distinct seed. Pollen from another tree of the same variety is no better than from the same tree. This failure to fruit is due to the sterility of the pollen and not to mechanical causes.

4. The impotency of the pollen is not due to any deficiency of its own, but to the lack of affinity of the pollen and ovules of the same variety.

5. The pollen of two varieties may be absolutely self-sterile, and at the same time perfectly cross-fertile.

6. The state of nutrition of the tree, and its general environment, affect its ability to set fruit either with its own pollen or with that of another tree.

7. Bees and other insects are the agents for the transportation of pollen

8. Bad weather during flowering time has a decidedly injurious influence on fruitage by keeping away insect visitors, and also by affecting the fecundation of the flowers; conversely, fine weather favors cross-fertilization and the setting of fruit.

9. Pears produced by self-fertilization are very uniform in shape. They differ from crosses, not only in size and shape, but also, in some cases, in time of maturity and in flavor.

10. Among the crosses the differences were slight or variable, so that their variations are not to be ascribed with certainty to the differences in pollen.

11. Self-fecundated pears are deficient in seed, usually having only aborted seeds, while the crosses are well supplied with sound seeds.

12. Even with those varieties which are capable of self-fecundation, the pollen of another variety is prepotent; and unless the entrance of the foreign pollen be prevented, the greater number of fruits will be affected by it, as shown by the study of Buffum pears.

13. The normal typical fruits, and, in most cases, the largest and finest specimens, either of the self-sterile or self-fertile sorts, are crosses.

PRACTICAL CONCLUSIONS.

1. Plant mixed orchards, or at least avoid planting solid blocks of one variety. It is not desirable to have more than three or four rows of one variety together, unless experience has shown it to be perfectly self-fertile.

2. Where large blocks of one variety which blossomed well have failed to fruit for a series of years, without any apparent reason, it is exceedingly probable that the failure is due to the lack of cross-pollenation. The remedy is, to graft in other varieties and supply foreign pollen.

3. Be sure that there are sufficient bees in the neighborhood, or within two or three miles, to properly visit the blossoms. When feasible, endeavor to favor insects' visits to the blossoms by selecting sheltered situations or by planting windbreaks.

BEES MOVING EGGS — CARNI - ITALIANS.

AN INCIDENT SHOWING THAT BEES DO MOVE EGGS.

By Emerson T. Abbott.

Willie Atchley has a long article on this subject in GLEANINGS, in which he claims that bees never move eggs. The editor says he would like to hear from the queen-breeders, especially Doolittle.

Now, I am not a queen-breeder, neither is my name Doolittle; but I think I have positive proof that bees *have moved eggs*. I am not prepared to say that they make a business of it; but the presumption is, that what they have done *once* they can and will do again.

Several years ago in Dutchess County, N. Y., I obtained a lot of black bees in the fall from farmers who wanted the honey, but intended to kill the bees. I put these bees on foundation, and fed them enough sugar syrup to take them through the winter. As they were all black bees, I introduced Italian queens as soon as I could. The black queen of one of these colonies was killed in some way in making the transfer; and, as soon as they began to draw out the foundation, I saw that they had no queen, and were building queen-cells. There was not an egg of any kind to be found in the hive.

Happening about that time to be in the apiary of a near neighbor who had Italians, I saw one of his weak colonies come out of the hive and leave for the woods. I went to the hive and found a number of small, white, new combs, but no honey. On examining these combs closely, I found that two or three of them were full of eggs. To try an experiment I took two of these combs home and put them in the outside frames of the hive that contained the bees which had neither queen, brood, nor eggs.

In three or four days I took the combs out to examine them, and saw that every egg was removed from the cells. On further examination I found a lot of eggs in the center of the hive, and a cluster of bees around them. I also found a queen-cell with a larva in it. This was a new experience to me, and I concluded I must have overlooked the black queen, and she had now begun to lay; but I could not account for the disappearance of the eggs which I had put in the hive. There was no way to solve the problem but to await developments, and I did so.

To make a long story short, in due time the bees had an Italian queen, and every one of the remaining eggs hatched an Italian bee. Where did they come from, if bees never move eggs?

CARNIOLAN HYBRID BEES.

In the same number of Gleanings, the editor, in speaking of Carniolans crossed with Italians, says:

"Possibly a cross would be desirable; but how are we to distinguish them from ordinary hybrids?"

In reply to this I would say they can be distinguished in the same way that we distinguish black bees from Italians. The progeny of a Carniolan queen mated with an Italian drone does not resemble the bee produced by a cross of the Italian with the blacks, any more than a black bee does an Italian.

In 1886 the writer published a little book in which he said:

"A Carniolan queen mated with an Italian drone produces a very fine and desirable bee. We have a number of such colonies that are very fine workers, and easy to manipulate—not quite so gentle, perhaps, as the pure-bred; but a single puff of smoke sends them down on the combs, where they will remain quiet."

More: I want to say that, by breeding out the silver-gray color, in a few generations we should have a bee which would show no trace of the gray blood which is found in the Carniolans. I have seen but one Carniolan queen whose progeny did not show yellow bands, and I have seen a great many Carniolan queens which came direct from Carniola, through Mr. Benton. I want to say further, that pure Carniolan bees bear no resemblance to the blacks.
—*American Bee Journal*.

[The incident that you have related shows indisputably that bees may move eggs from one comb to another, at least. It seems to us that other facts equally conclusive have been presented; but at the time Willie Atchley's article was published we were not able to turn to them. Regarding crosses of Carniolans and Italians, you say that they may be easily distinguished from the common crosses, but you do not say *how*. We have never been able to distinguish any difference in the markings; but perhaps if we had had more experience in raising Carniolans we should be able to do so. But what of the average beginner?

If there is any yellow in the original Carniolans it must be due to the Italian blood some way brought in across the Alps. From what you say above, we do not presume that you take the ground with Mr. Alley that the Carniolans were the original yellow race. The position might be tenable provided these bees as they come from their native climate were almost entirely yellow, with an occasional bee that shows a tendency to black; but the fact is, the very opposite is true.—Ed.]

RAMBLE 113.

ON THE THOUSAND-MILE JOURNEY.

By Rambler.

Among the various benefits derived from an off season in honey production is the desire to turn the attention to other pursuits. A season with honey production leaves several months in which the bee-keeper can be profitably employed at something else; but with none coming in, these months are increased in number; and the bee-keeper, unless a very idle man, must needs look around for something either pleasurable or profitable to do. The Mexican sets a very good example of sitting down and waiting for something to turn up. The bee-keeper does not follow his example, but, as a general thing, hustles around in his endeavor to "turn up" something.

Fruit-raising, or the buying and drying of it, is the readiest avenue to enter; but in this, as well as in the gathering, there are many hands of various degrees, from the Chinaman to the college-bred youth, and wages are not now booming on this coast; so the mind naturally

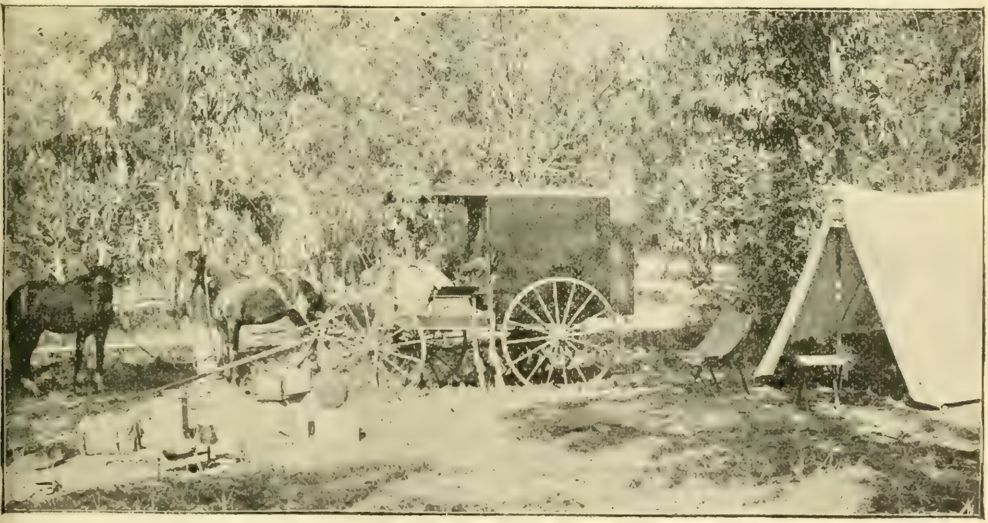
READY TO START.

turns to other avenues. The "Industrial Army" has taken several hundred laborers from our State; but bee-keepers do not swarm out in that way, even if they are this year accustomed to see starvation swarms.

Just now the desert has an attraction for the adventurous; and the search for the yellow metal is entered into with zest by some of our well-known bee-keepers. Mr. Segars, an old-time bee-keeper, is interested in this line; and Samuel Ferguson has a share in the Red Rock gold-mine, and does the teaming for the company. From late reports from the mining region, the gold business is on a boom—a nugget weighing 22 ounces having been found.

Mr. George Ferguson and his family are all away to the San Bernardino Mountains, working another gold-mine. So it turns out with bee-keepers this year. The little or much feeding necessary does not hold the bee-keeper long, and he is away.

With dreary prospects before us, neighbor Wilder and I discussed the situation in its various aspects. The fruit business seemed altogether too tame and domestic-like; the gold-hunting somewhat uncertain and full of hard-



AT REST IN CAMP.

ship, as followed by the old prospectors; then we could see—or, rather, imagined we saw—in the dim distance, several Eugenias poking their sharp noses over the Rocky Mountains toward us; and the prospect of being treed again led one of us, at least, to entertain any desperate effort to elude such happenings. We finally settled upon the plan outlined in the last ramble—that of making a grand panoramic, photographic, and camping tour of the State. The idea entertained grew upon us. Our talks by day and dreams by night were in relation to outfits, etc. Of all States in our great country, California presents the most charming aspect to the camper. From May till September we fear no rains; the ground is dry, and there are no fears of rheumatic pains after a night's bivouac upon it. There is but little danger from vicious men or animals, for life is as secure here as in our most favored States. The camper can live as cheaply on the road as at home; and, having means to make the tour profitable, let's away and enjoy ourselves.

Mr. Wilder had a pony, Keno, which had supplanted Vixen, and, possessing a far more tractable temper, was the more desirable horse —less circus and more business. After several days' search, and a few nightmares over the subject, and some danger of getting horse on the brain, we found a pony which matched Keno in size, shape, and gait, but was off on color and name. We, however, made the black match the bay; but the name Jack, applied to a horse of the female gender, was immediately changed to Reina* (Spanish for *queen*); and when Reina and Keno were introduced to each other they became as attached to each other as two kittens, and the incident augured well for the continuation of our efforts.

Our search for a proper wagon to carry our equipments was an arduous one, but was finally crowned with success. Wishing to put on a close top in which to stow our goods, and which could be used as a dark-room for working up photographs, we secured the use of neighbor Clark's shop, on condition that we were to clean up his shop for the use of it. We made a thorough cleaning of it, so far as bolts, screws, nails, etc., were concerned, but left any amount of shavings and litter. It seemed that our understanding in relation to cleaning a shop was different from our neighbor's; no great harm, however, came from it.

Our wagon, when finished, contained the most compact and complete camping-outfit very often found. Folding cots, folding chairs, folding tent; my photographic outfit; Mr. Wilder's bird outfit for taxidermy; our guns and fishing-tackle. Although guns are good at long range, we expect to bring down more game with the camera, and give the readers of GLEANINGS the benefit to a certain degree.

On the 7th of June, every thing being in its proper place in the wagon, I pulled a string attached to the shutter of the camera, and the snap shot thus obtained shows us just ready to depart upon the long journey—our objective point San Francisco, over 500 miles away.

Our first afternoon drive was to Claremont, 22 miles. Here we called upon Prof. Cook. We found him as enthusiastic as ever over this wonderful country, and his interest in bee culture is unabated. Prof. C. has a few swarms of bees close to his residence, and was studying a new bee-disease that is quite prevalent in and about Ontario. Mr. Herron, the San Bernardino foul-brood inspector, was also giving much attention to it. The dead larvæ, instead of having the black and ropy appearance of foul brood, retains its shape, but in a shrunken form, grayish in color, and of a watery consistency. It is probably a disease peculiar to the peculiar season, and not of a dangerous character, and may be akin to bee-paralysis, which is so prevalent in this locality. It is hoped that the investigators will strike upon a speedy remedy.

Our journey next day led us through a beautiful fruit-country. The foot-hills were sure to have their apiaries. At Duarte we found one of these bee-keepers, Mr. W. W. Bliss. We climbed a considerable hill to reach his residence, and found that the little mesa, upon which his house stood, had a splendid outlook over the valley, with its great variety of fruit-orchards. The fruit interests have occupied Mr. Bliss's attention to such an extent that bee-keeping has fallen into the background, and he now has but one colony of bees. He was, however, busy in the interests of bee-keepers, and was making foundation. We immediately wondered who could be getting honey this dry year, and our curiosity was gratified by learning that the alfalfa fields of Bakersfield, and places further north, were giving some honey. Mr. Bliss is a mechanical genius, and his work-building is a genuine curiosity shop—bee-supply business, photography, electricity, and various other things. In the manufacture of foundation Mr. Bliss believes in keeping his wax hot a long time, that all impurities may settle; also, when running foundation, it is handy to have the wax in a melted state in the morning. For these ends a furnace is employed in which a subdued fire is held all night; but I believe the fire refused to be subdued, or broke out in a new spot, one night. The wax boiled over, and there came near being a conflagration. These uncertain moods of the fire led Mr. B. to connect his waxworks electrically with a bell on his bedpost. An undue rise in the temperature of the wax in the shop rang the bell, and a calamity was averted. The bell was also connected in the same way with an incubator; and if a chicken became uncomfortably hot or cold, the bell rang. We saw a very healthy youngster around the place, and observed that, though electricity may be good to control melted beeswax and hatching chickens, the youngster was evidently brought up according to the good old way—by hand. Mr. Bliss is quite an expert with the camera, and had some fine views on hand.

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* Pronounced ray-*ee*-nah.

Our call was not a long one, and we were again on the move. That night we camped pleasantly upon Baldwin Avenue, among the pepper and eucalyptus trees. This large ranch is owned by "Lucky Baldwin." Upon this ranch, in Los Angeles Co., have been bred some of the horses that have beaten the world's records, one of them recently winning the Derby in England. To show you how comfortably we travel in this country, I give you a glimpse of our first camp, which is a type of all the rest. RAMBLER.

FASTENING FOUNDATION TO THE BOTTOM-BAR.

HOW TO PUT IT IN SO AS TO FILL OUT EVEN TO THE END-BARS AND BOTTOM-BAR, AND YET NOT SO AS TO SAG.

By Dr. C. C. Miller.

Having a lot of new frames to be filled I was quite anxious that they should be built solid to the frame on all four sides, without any space between comb and top-bar, bottom-bar, or end-bar. Of course, there is no trouble about having all right at top-bar, and very little at end-bars. But as a rule there will be a space between the comb and the bottom-bar, such space varying from ⅜ to ½ inch.

There is more than one objection to this space. It is any thing but pleasant, when looking for a queen, to have her dodge back and forth between comb and bottom-bar. The space is in the way when it comes to shaking or brushing bees off the comb. The comb is more solid in the frame if built down solid to the bottom-bar. In changing from ⅜ to ⅞ in the thickness of the top-bar we have lost half an inch in the depth of our comb; and if we get the comb built down solid we regain that half-inch. And I know of no advantage whatever in having a space over the bottom-bar, however earnest the bees may be in trying to secure it.

If the foundation comes so close to the wood that a bee can not crawl through, whether it be at the side or the bottom, I think the bees will generally join it to the wood. So all that is necessary is to have the foundation come within ⅛ inch or less of the wood, and the bees will leave no space. If foundation would not sag, nothing further would be needed.

But foundation does sag. If we can know just how much it will sag, can we not provide accordingly? Suppose it sags ¼ inch, and we let the foundation come within ¼ inch of the bottom-bar, how's that? Well, that's all right if we could only get the co-operation of the bees. But here's what they'll do. If ¼ inch space is left they prefer to have it more, and commence gnawing away the foundation; and as fast as it sags they keep it gnawed away so as to leave a space of nearly half an inch.

Not long ago I suggested in GLEANINGS that it might work to put a separate strip in the bottom of the frame, much in the same way that a bottom starter is put in a section. So I thought I would try it.

The frames were wired horizontally, and the bottom wire came about an inch from the bottom-bar. So I cut a strip of foundation about 1½ in. wide, fastened it on the bottom wire, then filled out the frame with a sheet of foundation that came from the top-bar down to within ⅛ inch of the bottom strip. Fastening the wire in the bottom strip was an awkward performance, as the strip seemed to want to wiggle about and do any thing but lie still in the right place. But Emma was experienced in fastening wires in foundation, and was equal to the occasion.

Then I put the frame in the brood-nest of a full colony to see what they would do with it; or, rather, I put in several, each frame between two frames of brood. While we are waiting to see what the bees will do with it, I'll tell you of another thing I was trying at the same time.

I thought I could improve on the way the foundation was fastened to the top-bar, so I had a saw-kerf made in each top-bar. The top-bars were 1⅛ wide and ⅞ thick. The saw-kerf was $\frac{5}{32}$ wide and ¼ inch deep. The idea is very old; but in all cases that I had known, the kerf was much less than $\frac{5}{32}$, and it was not easy to get the foundation in; but $\frac{5}{32}$ would allow the foundation to go in and to go in *easily*. Another difference was in making a deeper saw-kerf, a full quarter-inch deep. My idea was, that, by having it so deep, there would be no need of fastening—just trust to the wires to hold up the foundation till the bees fastened it; and if it did sag down a little it would still stay in the saw-kerf, for it would have to sink ¼ inch before it could get out.

At the end of 24 hours I went to see what progress had been made. The bees had fastened the lower piece of foundation to the bottom-bar beautifully, and had also fulfilled my expectations by fastening to the top-bar. I judged from appearance that they had fastened it to the top-bar without its coming out of place in the least. They had also made a fine job of uniting together the upper and the lower strip.

The only fault I could see was that, in some cases, they had not finished uniting the two parts of foundation at the outer ends. Indeed, instead of uniting they had gnawed the foundation so as to make the space between the two parts about half an inch instead of the eighth I had left. I think this would not have occurred if honey had been yielding; but this is a year of dead failure here, and at such times bees are likely to gnaw where they should not. I confidently expect such places to be filled up when the bees have something to do.

Evidently, however, there was a difference between the middle and the ends of the foundation. Might I not take advantage of that? Didn't it sag more in the middle than at the ends? So I concluded to try having the foundation continuous for about an inch at each end. By doing this I could also get rid of the wiggly performance of fastening the bottom strip on the wire separately. The frame was 8 inches deep in the clear, and, adding to that the depth of the saw-kerf, allowed foundation to be put in that was 8¼ inches deep. I made it 1/16 inch less than that—8 3/16. The foundation was cut about ⅛ inch shorter than the inside length of the frame. The wires were imbedded, and then the frame was laid on a board a little smaller than the inside of the frame, and a strip of foundation about ⅛ inch wide was cut out about half an inch *above* the bottom wire, cutting to about an inch of each end. This, of course, left the foundation whole without any space for an inch at each end.

After submitting this to the bees it turned out an entire success. The work was so perfect, that, without close examination, you would say that a single sheet had been put in without any cutting, true as a board, and completely fastened on all four sides. I had accomplished all I desired, having no space over the bottom-bar, and at the same time no bagging-out of the foundation, and it was done with really no extra amount of work, for cutting out the strip took no more time—yes, possibly it took a little more time than fastening the foundation to the top-bar in the usual manner.

The next question was, whether it would act in the same manner if a swarm were hived upon a full set of such frames. I had no swarm to try, but I did what amounted to about the same thing. I went to one of my strongest colonies, set the hive off its stand, put on the stand a hive having at one side a single frame of brood, and filled out with frames of foundation, then brushed into the new hive all the bees, and put on a feeder.

I rather expected the weight of the bees would pull the foundation down entirely out of the saw-kerf (the thermometer was in the nineties), so I didn't wait any 24 hours, but made an inspection in two or three hours. My expectations were realized, at least as to the three frames next the brood. The foundation was pulled entirely out of the kerf, and was hanging over in a most dejected manner.

It was evident that, in some way, the foundation must be fastened to the top-bar. So I replaced the three frames with three having the foundation fastened to the top-bar, by means of the German way, with a beeswax candle. The instructions are, to make a candle with a very slender wick, the candle two inches in diameter, and of uniform dimensions. I was in a hurry, and didn't go through any such formality. I picked up a string that had come from Medina around some frame stuff, took a single strand of it, and squeezed around it in no regular order some of the little strips of foundation I had cut from the sheets. Then I lighted my candle, held it on one side, and, as the drops of melted wax fell from it, I let them fall here and there along the line where the foundation touched the top-bar on one side. It was very quickly and easily done, and I like the plan very much. This time success was achieved. The bees didn't pull the foundation out of the kerf, but finished fastening it in.

The foundation was about 8 feet to the pound, and the frame next the brood sagged more than the eighth of an inch. Indeed, I tried a frame with a space of ¼ inch, and that was not enough. But instead of bulging out, as it would if the frame were filled entirely full in the ordinary manner, there is simply a buckling of the foundation upon itself—objectionable, of course, but by no means so bad as the bulging.

I think whoever wants combs built solid upon the bottom-bar will like the plan I have given. Just how much space it is best to leave between the two parts of the foundation depends on circumstances, much more being allowed where a swarm is thrown upon it than where a single frame is put in an established colony; and in the latter case there is no need to fasten the foundation in the saw-kerf. Of course, the manner of attaching the foundation to the top-bar is a matter entirely independent of the lower part of the frame, and I suppose the plan I have used to get comb built down to the bottom-bar can be used, no matter how the top-bar attachment may be; but I earnestly commend to the powers that be, at Medina, to try one or more frames with the 5/32x¼ saw-kerf; also the plan of building to bottom-bar, and report how it succeeds in that *locality*.

Marengo, Ill.

[Lest some of our readers, in going over the above, may not clearly understand, as we did not at first, the doctor's plan, we might add that he cuts his foundation (by his last-mentioned plan) the full size of the inside of the frame, and deeper by the depth of a saw-kerf in the top-bar. Of course, such foundation would sag when put on horizontal wires; but to prevent this he cuts out a strip of wax from ¼ to ½ in. wide, 1½ in. above the bottom-bar up to within an inch of each end and parallel with the bottom wire. In other words, to make up for what the foundation would sag, instead of cutting the foundation a little short, so as to leave ¼ or ½ inch space in the bottom of the foundation and the bottom-bar, the doctor takes out this space *right in the foundation itself*, just above the bottom wire, leaving an inch space at each end, however, not cut out.

Since receiving the article, the following has come to hand, which will explain itself:

> You may say that I have tried cutting out a strip half an inch wide, and the bees made a perfect job of it. One thing I might have mentioned: There is less stretching with my plan, because there is less to stretch. You see, if the lower strip is 1½ inches, then a half-inch space, it leaves the sheet only 6 inches deep. That's quite an item.
>
> C. C. MILLER.

We have thought of this matter a good deal; but at this time we do not really know whether we take kindly to the plan or not. We have not yet had a chance to try it, but will put a few frames in the apiary, as soon as possible, on the doctor's plan. We might say, in passing, that we have had more trouble with foundation, on horizontal wires, buckling *this year* than ever; in fact, we do not remember that the medium-brood weight ever buckled before on horizontal wires where at least four such wires were strung horizontally across the frame; but this year, on all the frames, the foundation showed a tendency to bulge a little between the wires. We think this was largely owing to the exceedingly hot weather, and to the fact that we did not allow, in consideration of this hot weather, sufficient room between the bottom-bar and the bottom edge of the foundation. We allowed, as usual, from ¼ to ⅜; and, contrary to our previous experiences, the foundation sagged clear to the bottom-bar. Had we allowed the full half-inch, as Dr. Miller suggests in his note just above, we think there would have been no trouble. On the other hand, when we allow ½ inch for *ordinary* seasons, the bees will leave too great a space between the bottom-bar and comb. Accordingly we have tried to compromise matters by cutting the foundation just as wide as possible, and yet not have it in danger of striking the bottom-bar and buckling.

Perhaps another thing accounts partially for the buckling. There seems to be a demand for a softer grade of foundation; and we have, therefore, made it softer by dipping the sheets thinner, which, of course, would make less pressure of the wax that went between the rolls. We have also, this year, taken pains to refine the wax to a greater degree than ever. In fact, all our brood foundation is made of the same wax from which the surplus is made. The extra-hot summer, and the softer wax, probably accounted for the buckling.

Now in regard to the doctor's plan. We think it quite probable that the buckling can be stopped, and that combs will be built clear to the bottom-bar; but will there not be an irregular line of cells where the foundation was cut out? and, after all, does it not entail a great deal of work?

If it were not for the extra work of driving in staples, and the bending-up of the bottom-bar, to say nothing of threading the wire through extra holes, we should prefer the perpendicular plan of wiring, without diagonal wires or intersections. On perpendicular wires the foundation may be put in filled out clear to the end-bars and clear to the bottom-bar, because perpendicular wires, of course, prevent the wax from sagging. It is also possible to use on such wires a lighter weight of wax. Notwithstanding all this, the disadvantages of perpendicular wiring, in our estimation, are so great that the horizontal wires are to be preferred; and after all it is seldom that there comes a season in our locality when foundation on the last named shows a tendency to buckle. Perhaps, taking it all in all, Dr. Miller's plan is the easiest solution of the whole trouble. Later experiments, not only by ourselves but others, will decide the matter.

We have tried putting foundation up into grooves, as you describe, said grooves being wider and deeper; but we did not like it, principally on account of the difficulty of fastening the wax; for we knew it would at times sag out and flop over. We have not yet tried the candle; but it strikes us that we should prefer the Hambaugh roller, with an even flat top-bar—the plan that is used not only by Mr. Hambaugh but by the Dadants and others as well, with great satisfaction. A full description of this method of fastening foundation to the top-bars is given in the new Langstroth Revised, page 375.—ED.]

DRONE COMB IN SECTIONS.

PREFERENCE OF THE BEES FOR IT, ETC.

By Harry L. Dwight.

Can you tell me why the manufacturers of foundation make only worker size for the sections? It is a well known fact, that the bees prefer the drone size for thin surplus, and will build drone comb if it is left to them. I have made a few experiments on this line, and find that, when worker-size foundation is used, ¼ or 1½x4 in., the bees will build down and change to drone, 87 out of 100; when sheets of foundation 2½x4 are used they will change to drone 72 out of 100; when just a starter is used, 1x4, they will change 91 out of 100.

Two years ago I bought 2 lbs. of drone-size foundation, and used it in two hives, putting a section containing drone and one containing worker size alternately, using full sheets of each. I found the bees at work in the sections containing drone, and they were filled and capped over four to five days before the sections containing worker size. It seems to me that this is quite an important point. Hereafter I intend to use drone size in my sections entirely, provided I can get it. Do you know where I can find it?

ADULTERATION, TO CHECK.

I have an idea by which the adulterating of honey can in a measure be checked. This plan is not original, as a similar method is used by cotton-packers. It is this: Let the Bee-keepers' Union adopt and copyright a label (on the same plan as the Cigar-makers' Union), every member of the Union to be registered and given a number, and label every package of honey he sells.

Suppose the jobber to whom he sells his honey wants to put it up in 1, 2, or 5 lb. packages. To illustrate, suppose my number is 846. I sell A., B. & Co., 100 lbs. extracted honey. They inform me that they intend to put this honey into 1-lb. cans, and I furnish them 100 one-pound labels, No. 846. At the same time I furnish 200 lbs. to C., D. & Co., to be put into 5-lb. packages; hence I furnish them 40 five-pound labels.

Inform the public of this plan, and assure them that all honey bearing "the Union" label is strictly pure. We must combine, and find some plan to prevent this wholesale adulterating.

When I lived in New York, a young man lived with me who was employed in one of the large wholesale grocery houses. He made no secret of the fact that they mixed their honey with glucose.

My brother, Prof. Charles E. Dwight, at one time State Chemist of West Virginia, invented and patented a process for making glucose. A company was formed, and for four years they were doing a big business at Wheeling, W. Va. One firm in New York contracted for all the "water white" glucose they made. They used this to adulterate syrup and honey; and in a letter to my brother they said: "We consider your white goods superior to Damlin's, as it is almost destitute of any flavor, *and we can incorporate a larger percentage in our goods*."

Extracted honey, or, rather, what is called extracted honey, can be laid down at our depot here from New York 2½ to 3 cts. cheaper than I can produce it. If the plan I propose is not practical, let some one propose another.

It works in other lines of business, and we can make it succeed if we all put our shoulder to the wheel. HARRY L. DWIGHT.

Friendship, N. Y., July 14.

[Some eight or ten years ago, drone foundation was made and sold quite largely; but the bee-keepers of the country at that time decided emphatically for the worker—not only for the brood-nest, but for the surplus—principally because the queens showed a greater disposition to go above and lay in the drone-cells, particularly when there was an entire absence of such cells in the brood-nest. The reason for this was plain. On the other hand, when nothing but worker-cells was above, and the queen had plenty of the same sort to lay in below, she would let the surplus alone. We furnish drone foundation when it is called for.

It is a recognized fact that bees will usually build store comb for *surplus*, no doubt because they can build it quicker. But *if* it is a fact that bees will enter, build out and fill sections with *drone* foundation very much earlier than in sections of *worker*, it may be well for us to pause and consider. Let us have more light on this question from a number of our "old timer" comb-honey producers.

Your plan of preventing adulteration was proposed some two or three years ago, and discussed pretty thoroughly in the journals; but for some reason or other it seemed to be impracticable at the time, and so was regarded by the Manager of the Bee-keepers' Union, if we remember correctly.—ED].

HOW TO KEEP BEES OUT OF WATERING-TROUGHS.

Apply with a paint-brush any old grease or butter, with a little coal oil added to it, to the edge and inside of the trough. This is a very effective remedy, and but for this I should almost have been obliged to give up bee-keeping, as my horses could not drink out of the trough at noon. EDW. SMITH.

Carpenter, Ill., June 29.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO. N.Y.

FEEDING BACK.

Question.—Having some extracted honey on hand, and as our honey season is about over, I wish to know if it pays to feed back extracted honey to queenless colonies for the purpose of having them store it in the sections.

Answer.—I do not understand why you say "queenless colonies," for I never knew that such were used under any circumstances, where feeding back was done. I should not suppose that queenless colonies would do any work at all to amount to any thing in this way, for queenless bees are always very loath to build comb. I may be wrong in this, however, when it comes to feeding back, as I never used such colonies. Is there any reader of GLEANINGS who has used queenless colonies in this way? and if so, what kind of work did they do? The usual plan is to contract the brood-chamber till only combs nearly filled with brood are left, not more than four or five being used, so that the work with the feed will all be concentrated on the combs in the sections. As I should take it, the question means, though not so worded, Does it pay to feed back extracted honey for the purpose of having it stored in sections? To this I would reply that I believe it pays to do so only in having partly finished sections completed. Many trials have been made at producing section honey from the start out of a feeder; but, unless I have been misinformed, nearly every one who has tried it reports the same as not being a paying business. In fact, with the low price now prevailing for section honey, I doubt whether it pays to feed back to finish partly filled sections, as there is much labor about the matter; the honey is not so good after being completed, and the colony of bees thus treated is not left in as good shape for winter as it would have been if left undisturbed, while the partly filled sections are worth nearly if not quite as much to the bee-keeper as "bait sections" for the next season as they are when filled with honey of the kind gotten by feeding back. Such honey is quite apt to candy or granulate in the comb before all is disposed of; and unless great pains are taken in uncapping the parts of the combs the bees have sealed during the wane of the honey harvest, the combs in the sections are uneven on the surface, making them not desirable as to appearance.

SHADING BEES, AND SWARMING.

Question.—Will bees that are sheltered from the sun's rays swarm as early in the season as those not so shaded?

Answer.—Probably not, as a rule; yet much depends upon the kind of shade used. If the shade is simply a shade-board, which keeps the sun's rays from striking the hive from 10 A. M. to 2 P. M., I think little or no difference will be made as to the time of their swarming, as the sun heats up the hive in the morning hours, from which it does not cool off much till it shines on it again in the afternoon, so that there is all the warmth necessary for rapid brood-rearing. But where the shade is a dense one from overhanging trees, the warmth from the sun can not reach the hive, and thus brood-rearing is retarded, causing later swarming. Such dense shade as above spoken of is a thing to be avoided by the apiarist who would secure the best results from his bees, in the opinion of Doolittle. Then, again, it apparently depends on the wants of the bee-keeper; for, seemingly, when the novice in the business has a great desire for swarms, the bees will most likely tarry in the sun or in the shade; and when, in later years, he has more than he wants, they will begin to swarm before breakfast, and continue to do the same till after supper, until he almost curses the day, which is sweltering hot, and alive with swarms which ought to stop their nonsense and go to work in the sections, as continued swarming and section honey do not go hand in hand.

ITALIANIZING.

Question.—With a view of being least liable to go wrong, how should a beginner manage to Italianize ten or twelve colonies of black bees?

Answer.—That depends upon whether you are desirous of doing all the work yourself, and thus learning all the little kinks of queen-rearing, or whether you simply wish to have all your bees of the Italian variety as speedily as possible, with no further attention being paid to the matter. If the latter, then I would advise buying untested queens of some reliable dealer; learn of him how to introduce them safely; and, when introduced successfully, you will have solved the matter. If, on the other hand, you would like to know something of queen-rearing yourself, then buy a queen of two different parties, known to be purely mated, and raise queens from one and drones from the other. Keep down all black drones by using only worker combs in the brood-chambers of the black colonies, except a little piece two or three inches square in one comb, keeping that comb in a certain position in each hive so that once every three weeks you can take these combs from the hives and shave the heads from the nearly mature drones. Thus you will have no black drones; and if your neighbors do not keep bees, and there are no colonies of black bees in the timber in any woods not nearer than three miles from you, you will have little difficulty in having the majority of your queens purely mated, after which your yard will keep Italian, no matter whether you increase your bees to 200 colonies or allow them to remain at their present number. But should there be flying black or hybrid drones in your neighborhood, your young queens would give, practically speaking, pure Italian drones, so that the next year the most of your queens will mate with these, when by selection, after you have seen the progeny, you can soon have the whole apiary stocked with none but Italians.

[A number of years ago the correspondents of GLEANINGS seemed to generally agree that feeding back was not profitable; we therefore indorse what Mr. Doolittle has to say. In regard to Italianizing, we also indorse him here too. Perhaps it may well to suggest that untested Italian queens can *now* be bought more cheaply than at any other time; and just after the honey harvest we know of no time when Italianizing, or, more generally speaking, changing the queens, can be effected more economically. In the advertising columns of our journal you will see how cheaply queens can be bought. We take pleasure in recommending you to the whole of them, for, so far as we know, they are all careful and conscientious breeders.—ED.]

Heads of Grain FROM DIFFERENT FIELDS

At the last meeting of the Ontario Co (N. Y.) Bee-keepers' Association, the following resolutions were adopted:

Whereas, The U. S. Government has voted many thousands of dollars for the promotion of science and arts for the benefit of the few;—

Whereas, The U. S. Government has voted many thousands of dollars for the promotion of agriculture, but has never voted a dollar for the promotion of apiculture, upon which rests much of the success of the agriculturist, horticulturist, and the prosperity of millions;—

Therefore resolved: We, the bee-keepers of Ontario Co., N. Y., in convention assembled, would respectfully ask and demand that Congress vote a suitable appropriation, and employ competent parties to visit Judea and the East Indies, for the purpose of securing *Apis dorsata* and other races of bees not now domesticated, and secure their introduction into the U. S.

Further resolved, That a copy of these resolutions be published in the bee-journals, and that the bee-keepers of the U. S. be asked to join in petitions to Congress for the same purpose.

W. F. MARKS,
L. C. MATHER, } *Com.*
F. D. FRENCH,

Bellona, N. Y. RUTH E. TAYLOR, Sec'y.

DRONES FROM VIRGIN QUEENS—ARE THEY GOOD FOR ANY THING?

Are drones from a virgin queen virile? If so, I'm right for drones all the year round. This climate is so mild that I can raise queens all the year round; and if I can have select drones in mid-winter I can have my queens fertilized by them. I clip the wing of one of my most suitable *virgin* queens, and after a while she will commence to lay in worker cells. Of course, these eggs would produce only drones; but when a few days old I transfer them into drone-cells; and it doesn't take me long to transfer a few hundred. They are then placed in a queenless colony, and perfectly developed drones will come forth. If the virgin queen could be induced to lay in drone-cells, all this would be avoided; but she usually can not. The queenless colony will try to convert some of the drone larvæ into queens, but not many.

H. L. JONES.

Goodna, Queensland, Aus., May 11.

[The best authorities seem to agree that such drones, if raised in drone-cells, are as good as any; it is possible, also, that those from worker cells are also. No real positive proof has ever been furnished either way.—ED.]

DOES NEW COMB HOLD MORE HONEY THAN OLD?

I think old combs become more or less coated with wax and dirt until the cells are made smaller. If that is true, why wouldn't the brood be cramped in its growth?

ELBERT ARCHIBARD.

Stockton, Cal., Jan. 4, 1894.

[This question has been brought up before. Some hold, as do you, that the cells of old comb are smaller; but others, that the cast-off cocoons are removed from time to time. We have picked out, assisted by a lens, from four to six cocoons in a cell, but never more. It is possible that, when the cells, from age of the comb, show a tendency to become too small, the bees remove a few cocoons. We confess we do not know very much about this question. Authorities seem to be singularly silent.—ED.]

ON THE USE OF THE PINEAPPLE.

On p. 475, June 1, you ask any of your readers who live in the pineapple regions to give you a little light on the use of the fruit. My lower place on the St. Lucie River is right in the principal pineapple section of the State; and while I am not making any business of growing the fruit for sale, yet I have some 1300 apples this year, and expect to increase the number of plants out each year.

At present we are exceedingly busy with one of the heaviest flows of honey I have ever seen, and I can not take the time to write up the subject as you wish, but will try to do so as soon as possible. I have often wondered why our undersized and refuse fruit could not be used up in some such way as you suggest; and when we go back below in August I will try some experiments with the canned juice. The practical difficulty will be to so can or bottle the juice that it will keep sweet, and we should be very glad indeed if you could tell us how it can be done.

O. O. POPPLETON.

Hawks Park, Fla., June 15.

GALVANIZED HONEY-VESSELS.

In the *Journal* for June 21, p. 244, Mr Woodley, in "Notes by the Way," recommends galvanized vessels for holding honey. I must caution your readers against them (unless coated). Several years ago, during the editorship of the late Mr. Abbott, I found, in packing over forty stocks for the winter, the combs contained dead sealed brood (whole combs of it). I forwarded a portion to the *Bee Journal* office, and Mr. F. R. Cheshire wrote in reply, "Brood healthy, well fed, symptoms of poisoning; what have you fed the bees with, and in what vessel was it placed?" I answered: The vessel was a galvanized one. The food was a little thin honey standing a month in the vessel, to which was added 1 cwt. of sugar made into syrup and fed to the bees. It was afterward found that the acid in the honey had acted on the zinc and slightly poisoned the syrup—not sufficiently so to kill the bees, but sufficient to kill the whole of the larvæ, and, if so, it must be a bad thing to store honey in.—J. R. TRUSS. *Ufford Heath, Stamford, July 2.* —*British Bee Journal, July 12.*

APPLE-BLOSSOM HONEY IN ILL REPUTE.

Apple-blossom honey is, with us, considered very poor; in fact, we dislike it very much. We would not eat it, but have given it to those not experienced, or those who seldom eat honey. They pronounced it fine. I told them I could not eat it. They said it was all honey to them —saw no difference. Hodge might like it, the same as some like castor oil and quinine.

Atherton, Ind. G. F. AYRES.

APPLE-BLOSSOM HONEY FINELY FLAVORED.

As you ask for reports concerning apple-blossom honey, I would say that I consider it one of the finest-flavored honeys we have. I extracted over 100 lbs. from an out-apiary, a sample of which I send you.

The honey season has not been as good as expected, owing to too much rain. Alsike gave us a nice lot of honey notwithstanding, as we have induced the sowing of it by a judicious distribution of alsike leaflets.

CHARLES STEWART.

Sammonsville, N. Y., July 10.

[The sample was received, and was of a very fine delicate flavor. Friend Ayres, above, does not prize it so highly. Perhaps his was not real apple-blossom honey, for the majority of the reports speak well of it.—ED.]

IN FAVOR OF THE 8-FRAME HIVE; THE IMPROVED BAR NOT LIKED.

In regard to the discussion now current in GLEANINGS may I say, first, of the two (eight or ten frame hives) I much prefer the former? I think, from my own experience, and for this part of the Union, the eight-frame hive is correct.

Now for the second question. I think your Dovetailed hives are very nice. The frames look beautiful, and seemed to be spaced perfectly (new goods of 1894); but let me say that, just under your top-bar (I mean that improved groove, ridge, or starter, running along the center for a comb-guide, leaving two ridges on either or both sides) does not work with me for hiving on empty frames. The bees have taken the outside one frequently. Give me the former style, every time, with one unmistakable comb-guide and a bottom-bar ¾ inch broad, and a little flexible. GEO. W. GEASLEN.

Jessup, Md., July 11.

[There have been other complaints, more particularly because of the difficulty of fastening comb foundation to the comb-guide of the improved top-bar; and very recently we have changed the cutter-knives so as to make the grooves on either side deeper, leaving the comb-guide more prominent, and more accessible to a foundation-roller. The new top-bars, while modified but slightly, would give you but little trouble, except, perhaps, to hive a swarm upon frames containing such top-bars absolutely free from any comb-guide. It is not a safe thing to do, usually, to hive on frames strictly empty. Most bee-keepers fasten a narrow strip of foundation to the comb-guide; and even if it project down only an eighth of an inch, it will prevent the bees from building the combs crosswise of the frames. Another season we contemplate sending out with hives all complete, enough foundation for mere starters. We thus secure all the advantages of hiving on empty frames, and at the same time insure the bees starting right. Our bottom-bars have been made ¾x¼ inch for two or three months.—ED.]

THE THEORY THAT NURSE-BEES TRANSMIT THEIR CHARACTERISTICS TO THEIR OFFSPRING DISPROVED.

I'm glad to have friend Abbott correct me as he has done on page 536. But it seems to me he might have done it in fewer words — something like this: "Dr. Miller is an old fogy, and still holds to the theory that was held several years ago, that the germ is furnished by the male. Scientists nowadays believe that the new being does not proceed from the father alone, but from the union of two cells — one furnished by the father and one by the mother; therefore traits resembling those of the mother come through the original cell, and not, as was formerly supposed, through nourishment received from the mother; hence he has no support therefrom to prove that traits come from nourishment furnished by the nurse-bees."

There, Bro. Abbott, haven't I made a better job of it? You see, I've told in a single paragraph what you occupied two full pages in telling. I've just one excuse for my mistake— ignorance — pure ignorance. The old theory had remained good the last I knew of it, and, having held good for ages, I didn't think of its having been knocked endwise in the last generation. But, please remember that I am no champion for the theory of heredity through the nurse-bees. I'd rather not believe in it. Good men, however, advocate it; and if there is any thing in it we are wise to look the matter squarely in the face, and be guided accordingly; for it has direct practical bearing on queen-rearing. So I am very glad of friend Abbott's correction, for it leaves a better chance to believe that it makes but little difference what sort of nurse-bees rear a queen, providing the egg comes of good stock. C. C. MILLER.

Marengo, Ill.

HASTY'S BEE-VEIL; A SUGGESTION.

If Mr. Hasty will make his veil as I do, he can lick his fingers as often as he pleases, and let out a stray bee without taking out a pin or unfastening any thing. Tell him to sew the veil to a yard of broad elastic, allowing a little fullness for the elastic to stretch; sew the ends together; take two pieces of the elastic, about 12 inches long, and, with four safety-pins, pin them on for armholes. You can make them fit any one by moving the pins; then you can wear a broad-brimmed hat, and the veil never touches your neck. A. GRUBB.

THOSE CALIFORNIA REPORTS.

Mr. Root:—I supposed the men who gave the reports of the S. C. B. K. A. were true, as they were surely best informed. I simply reported what they gave, and what I took down on the spot. Personally I have all yet to learn. I know that this year is almost if not quite a total failure. This strike shuts us from the world. I hope it will bring good commensurate with the cost. A. J. COOK.

Claremont, Cal., July 6.

THE "CRANK" VS. THE "JAW."

In one of Rambler's Echoes, printed June 15, he suggests that some one construct a combined head-dress and smoker for bee-men, the smoker being operated by the jaw of the wearer, adding that men might not work it; women would. I was ungallant and *unwise* enough to read this Echo to a lady, giving the insinuation its full force, when she remarked, "Some one ought to make a smoker to be operated by a *crank*. Women couldn't work it, but men *could*." Please tell Rambler.

JESSE W. NEWELL.

Farmersville, Ill., June 22.

THE SWARM OF A CLIPPED QUEEN.

In your issue for July 1st, page 536, Dr. Miller takes the *British Bee Journal* to task for saying that the swarm of a "clipped queen will join her on the ground." Please say to the doctor that I have had only one swarm this year; and after getting out of sight they returned, and settled on the ground within ten feet of the hive, where I soon found one of Trego's clipped queens, and in 15 minutes I had rehived them.

Franklin, Tex., July 6. J. MITCHELL.

THOSE DRONES FROM LAYING WORKERS.

I notice you requested me to report about drones from laying workers. The island I had picked out was occupied with sheep under the the care of an old Mexican, and he was afraid to let me put bees near him. I am about to perfect arrangements with the light-house keeper, 10 miles out at sea, on a small island near Port Lavaca. Then I shall soon be prepared to answer the question.

Beeville, Tex., July 16. JENNIE ATCHLEY.

GLEANINGS IN BEE CULTURE
Illustrated Semi-Monthly
A Journal devoted to Bees and Honey and Home Interests
36 Pages 7x10
$1.00 per Year.

Behold, I will bring it health and cure, and I will cure them, and will reveal unto them the abundance of peace and truth.—JER. 33: 6.

WE are beginning to think that we had better call a halt on the tariff question. It has now been quite well discussed on both sides, so far as it affects bee-keeping.

THE *American Bee-Keeper* objects to the practice of having its name indicated by the initials alone, and wants the names of all the journals spelled out in full. The point of order is well taken, except in such matter as Stray Straws, for instance, where the names of all the different bee-journals are used so constantly that a shorter way of indicating them seems almost indispensable. We think such abbreviations, where numerous, will cause no confusion.

THE Annual Report of the Bee-keepers' Association for the Province of Ontario, 1893, is before us. It contains a very full and interesting account of the proceedings of the last meeting of the Ontario Bee-keepers' Association, and was printed by order of the Legislative Assembly of Ontario. In looking it over we were struck at once with the evident fullness and correctness of the report; and, being curious to know who was secretary, it was with no little pleasuse that we learned it was the late S. Corneil, of Lindsay, Ont.

STATISTICAL REPORT CALLED FOR.

WE are expecting now to send out in a few days some statistical blanks. Now, we do not wish to slight anybody. We should like to have every bee-keeper, who is interested in knowing what the crop of honey has been, to send us a postal card at once—later will not do—answering just these two questions: 1. What has been the honey season in your vicinity, so far as you can ascertain? 2. What was your average yield in honey, both comb and extracted? Now, please do not go and add a whole lot of particulars; because, when we attempt to go over hundreds and perhaps thousands of postal cards, it takes time to tabulate them properly.

Of course, you fully appreciate the necessity of knowing what the crop has been. If you or your neighbors have secured good yields, and you know the yield has been poor throughout the country, you will not be in haste to lump it off at a low price.

ROBBING IN THE WAKE OF BASSWOOD.

IN very many localities in the North there has been an excellent basswood flow. We presume that, by this time, it has stopped, and robbers—oh my!—look out! Be sure that the entrances to all nuclei are contracted; and if they get started badly upon any one hive, cram the entrance loosely with grass—just tight enough to prevent the entrance of robbers for the time being. In a very short time—at least when the bees inside have had a chance to recover themselves—the grass will have wilted, and no smothering will have taken place, as might be the case were the whole entrance stopped tight with a stick

By the way, robbing can be checked to a certain extent by dousing the bees as they pile over each other pellmell near the entrances of hives, with sprays of water from the fountain pump, or even from a watering-pot. It wets their wings up, wets the grass, disconcerts the robbers, and gives the bees in the hive a chance to know "where they are at."

CONDITION OF THE HONEY-YIELD SO FAR AS REPORTED; BETTER THAN LAST YEAR.

WE have had a remarkable flow from basswood. It lasted for us, and for our neighbors within three or four miles of us, about a month. Usually we do not get more than about ten or fifteen days flow. One of our neighbors reports about a fifth of a crop; another, a little better than a half. Neighbor Chase, instead of being "in clover," as reported in last GLEANINGS, by reason of the prospect before him of obtaining a large crop from alsike and basswood, obtained 15 lbs. per colony this year, against 60 for last year. So far as we can ascertain, the yield from basswood has been good in most localities, particularly in Wisconsin. New York, and Pennsylvania. Colorado reports a good yield, presumably of alfalfa. Michigan also seems to have done well. Reports show that the season has been an entire failure in California. The fact that we are receiving more offerings, and at a lower price, seems to indicate that the season generally was better than last year, east of California.

THE ATCHLEY FIVE-BANDED QUEENS—A GOOD WORD FOR THEM.

ABOUT a year ago Mr. Vernon Burt, of Mallet Creek—a name familiar to our readers—ordered of Mrs. Jennie Atchley, through us, a dozen five-banded queens, to test them. He wintered most of them over; and this year, now that the honey season is over, he reports that their colonies brought in *more* honey per colony than any others he had in the apiary; and this morning he came down to order a dozen more of the same kind of queens.

Said he, "I shouldn't care—in fact, I should rather prefer to have every colony in my apiary of the five-banded sort, if they are going to pan out like this for honey." If the next dozen shall do as well, his apiary will ultimately be queened with five-banders.

This may look like a free advertisement for Mrs. Atchley; but inasmuch as she sustained great damage through a hot Texas wave, as mentioned in our last issue, we feel sure that many of our readers in need of this sort of stock will be glad to place their orders with her, thus in a measure helping her to make up the great loss she has sustained.

The following is a note just received, in line with the foregoing. We take pleasure in presenting it.

> My July 15th GLEANINGS has just arrived, and I notice in your remarks about five-banded bees you say they are crosser than the average Italians. Now, I wish to say that my five-banded bees are the gentlest I ever saw, and are not disposed to fly from the combs while handling. I never use veil or smoke in handling them, and have never had a sting from my breeding colony. I have just been out and gone through the hive, which is a strong two-story colony, and there is no honey coming in from the fields. I used neither veil nor smoke, and the bees seemed to take no notice of me whatever. It is almost impossible to make them sting. My little boy, six years old, will scrape them off the front of the hive, and carry them around in his hand. J. E. HAND.
>
> Eldora, Ia., July 18.

[We did not say that *all* our five-banders were cross.—ED.]

BEE-PARALYSIS — THE DISEASE INVESTIGATED IN AUSTRALIA; ANOTHER CURE.

It seems that the Department of Agriculture for the province of New South Wales, Australia (reference to which is made in another column), has seen fit to institute a special investigation of the disease called "bee-paralysis," its cause and cure. In warm climates this peculiar disease makes serious havoc; and hitherto, for such climates, we knew of no certain and satisfactory cure. Of course, here in the North we think nothing of it, for the bees seem to be able to ward off the disease themselves.

Well, it seems that this same disease has been making havoc in some of the large apiaries in New South Wales — particularly in that of Mr. Kitching, of Campbelltown. The Department of Agriculture for that province employed Mr. R. Helmes to study the disease in the apiary of Mr. Kitching. He did so, and the report is now before us in the *Agricultural Gazette* of New South Wales. Mr. Helmes' description of bee-paralysis shows that it is exactly what we have here in this country; and he also associates with it another disease which he calls the "Depilating Disease;" but the symptoms are so nearly alike that we have come to the conclusion ourselves that the two diseases are one and the same — the last mentioned being a less aggravated form of bee-paralysis.

Mr. Helmes has concluded that one of the causes is a diseased or poor queen, and that the removal of the same assists greatly in the cure of the disease. He further recommends purging and spraying the bees. At this point we can do no better than to give his own language for his method of cure:

> Summarizing the methods I recommend for curing the bee-diseases known as bee-paralysis and depilating disease,[*] they are in short as follows:—
>
> Disinfect the stand and hives by heat; in case of bee-paralysis, give a purgative, and keep the bees closed up for fourteen to eighteen hours, and then start them from the hive, and excite them by spraying with diluted oil of cinnamon; spray in either case with ½-per-cent solution of carbolic acid every third or fourth day; supersede the queen of the diseased colonies in both cases as soon as possible by a prolific queen from a healthy strain. As a good honey-flow has been observed to help materially to eradicate diseases, I would advise feeding in all cases where either of the diseases has appeared in a stock in which the supply of food is reduced. It may not act quite as effectively as the gathering of nectar, for which a greater amount of exercise is necessary, and the activity displayed by the bees during this process seems certainly conducive to keeping the bees in good health; but it is the best substitute for it, and will keep the individual inhabitants of the hive strong, and consequently better adapted to resist the aggression of contagion. Moreover, the food thus given can be judiciously medicated with antiseptics, which would be desirable, if not actually necessary.
>
> Regarding the purgatives given by me, I found that podophyllum or senna acted very beneficially, without producing any apparent weakening effect; of the two, podophyllum seemed to me preferable. The doses given were: 1 fluid oz.[†] of tincture of podophyllum to 6 lbs. of honey-food; or 4 fluid oz. of tincture of senna to 6 lbs. of honey-food, the honey-food to consist of three parts of honey and one part water, to be well boiled and skimmed. A little extra water has to be added to allow for evaporation during the boiling, the medicine to be added after the food has become cool. Three-quarters of a pound to a pound, according to the strength of the colony, or less if the same is weak, spread over a perforated sheet of zinc, as described before, is about the quantity to be given; but as the number of bees in each hive is often very variable, a hard and fast rule can not be laid down for it. As in many other cases, the administration of the medicine and the general treatment must be left to the judgment of the apiarist, who will know best how to choose a suitable time for it, and who is generally fairly well acquainted with the strength of his colonies.[‡]
>
> I have not tried Epsom salts, but have heard of its being administered with good results. No doubt it will purge readily, and a 1-oz. packet to 10 lbs. of food would produce a strong medicine. A somewhat drastic method of purging seems to be necessary to cure bee-paralysis; but the absence of all stimulating action in Epsom salts induced me to reject it.
>
> It is well known that salt is required by bees, particularly in spring, before any honey-flow sets in, and it probably acts as a mild purgative upon their constitution. At any rate, it seems to be a tonic, so to say, and therefore it must be recommended to be given at times to the bees, so that they do not have to seek it at offensive places, such as dung-heaps, urinals, or the overflow of closets. It is very desirable that a few small wooden troughs filled with brine, or, where the atmosphere is not too dry, a few pieces of rocksalt be kept at every apiary, to enable the bees to get the necessary supply readily and in a clean manner when they feel inclined for it.

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[*] This is more generally known as the "hairless" disease, which, however, sounds so irrational that I can not, on account of this, adopt the name. It is not the disease that is hairless, but the bees become hairless during its progress.

[†] I found that an ordinary egg-cup holds as near as possible a fluid ounce, and may safely used in case a graduated vessel is not available.

[‡] Dr Cobb advised that, to 10 lbs. of food, 1 oz. of podophyllum or 4 oz. senna be mixed, but I found this quantity not effective enough.

To obviate the offensive smell carbolic acid possesses to bees, I mix the ½-per-cent solution with some oil of thyme. The odor of this, it is well known, is very agreeable to bees, and a dozen or twenty drops of it to a pint of mixture scent it perfectly, and apparently suppress the smell of the carbolic.

Purging the bees is a rather new idea to us; but it seems reasonable, inasmuch as the bees affected with the bee-paralysis have swollen or distended abdomens. They seem to be unable to void their fæces, which is of a yellow or watery color. The sprayings alone, so far as reported to us for this country, seem to have had but little effect.

Inasmuch as this disease seems to be making serious havoc in warm climates, it is highly important that we know more about it; and we hope some of our friends in the South and in some parts of California will try the treatment described by Mr. Helmes, and report the same through our columns. For Mr. Kitching, in whose apiary Mr. Helmes operated, a complete cure was effected. Mr. C. S. Ford, of Columbia, Miss., in this country, has tried every thing we could suggest. We hope, however, he will try this purging, together with the sprayings, once more, and report to us the result. While we are not overly sanguine, we think those whose bees are seriously affected with the disease should give the treatment at least a trial.

TRADE NOTES

BY EARNEST R. ROOT.

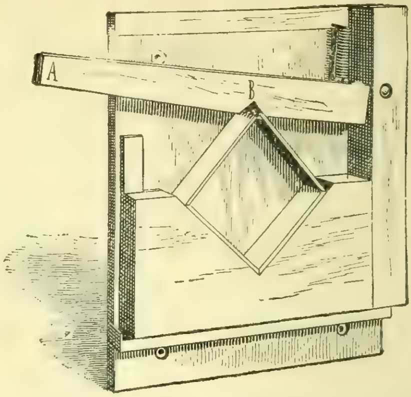
TOWNSEND'S SECTION-FORMER.

A few days ago we received the accompanying electrotype, together with a circular, from O. H. Townsend, of Alamo, Mich. We had seen the same thing illustrated in the *Bee-keepers' Review* previously, but did not believe there would be power enough to fold the section satisfactorily. The sample machine that came to hand with the electrotype was put to the test, however, and, greatly to our surprise, sections were folded neatly and nicely. The Hubbard section-former, with which our readers are familiar already, has a powerful toggle-joint for forcing the dovetails of the sections together. This machine, instead of depending upon mere pressure, drives the corners together with a sort of blow or sharp thrust from the hand. The following are the directions sent out by the manufacturer:

DIRECTIONS FOR USING.

Lay the press flat on a bench, with the large notch from you, with the end of the lever pointing to the right. Secure the press by fastening a cleat to the bench back of the press.

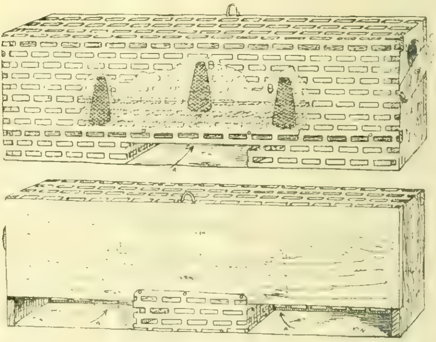
Now, having dampened the sections where they are to be bent, pick one up, taking hold with both hands, with the fingers on the side having the grooves on, holding it from the lower side; this puts the section in a position to fold and place in press with only one motion. Let the ends of section crowd out in the notch B in the lever; hold the section down with the left hand, and give the lever a light, quick stroke with the right hand, which finishes it.



For further particulars, correspond with him as above.

HARRISON'S IMPROVED ALLEY DRONE AND QUEEN TRAP.

It is well-known that the Alley trap, as arranged by the inventor, was designed to catch only the drones *in the hive*. Mr. G. W. Harrison, a neighbor living in Copley, O., has arranged his so it will not only catch the drones that are in the hive, but the drones without, that may apply for admission at its entrance.



The engraving above will, we think, make the idea plain. You will observe there is both a front and rear view, the last mentioned being at the bottom. The drones from within the hive will, after failing to pass the zinc, take the direction of the arrows, as shown in the lower figure. Those from without will take the direction of the arrow—that is, under the central passageway, and up through the cone. We believe Mr. Harrison claims that it gives better ventilation. Mr. Harrison's modification may or may not be new. We have not looked it up.

ROBBING SICK PEOPLE.

SCIENCE AND SUPERSTITION.

By A. I. Root.

It is bad enough to take money from people in health and well to do; but it is a shameful thing to rob the sick and the suffering, and the poor and destitute. Those who are engaged in the business claim that they do not take anybody's money without their consent and approval. But I do not think this makes very much difference. Obtaining money under false pretenses is recognized as a crime by the laws of our land; and if you think I am too severe in the matter, let me explain to you the way in which money is obtained by false claims and misrepresentations.

Most of you recollect about how long ago it was that we commenced finding articles in the reading-matter of our home journals and papers, said articles being only an advertisement, for which the editors are exceedingly well paid. It has been urged that nobody is deceived, because every one understands that it is an advertisement, even if the head-lines do read, "Almost a Miracle," and "Snatched from the Brink of the Grave," and such like expressions. If nobody is deceived, let me ask you why the proprietor pays the editor such a big sum of money for inserting things of this kind. Ask the editor of your home paper how much he receives for these things; and if he is honest his reply will astonish you. You may insist, however, that the medicines do do *some* good; and I confess that, for a time, I thought there must be some real virtue, or else men and women standing high in society, and oftentimes those who are widely known throughout our land, would not lend their names to such schemes. But an experience that I have had of late has been giving me a glimpse of the truth. I am *sure* I am right, dear friends; and every year I live, the testimony comes home to me stronger and stronger that few of the medicines so largely and widely advertised have any effect whatever on the one who buys and takes them. Now for the proof.

Many of you have doubtless seen an advertisement headed "Electropoise." The thing emanates from the Electrolibration Co., New York. They profess to cure disease without medicine. Some of you may have had some experience with the thing, and may insist that it has virtue. To which I reply that, if there is really any virtue in it, it is exactly of the kind that belongs to an old horseshoe. You have heard in childhood, if not later, that finding a horseshoe would bring good luck; and you have doubtless seen horseshoes nailed over the door of the superstitious or ignorant. They claim that the horseshoe brings good luck, wards off disease, etc. Well, let us suppose there is virtue in an old rusty horseshoe; and suppose somebody discovers that, if he attaches a wire or string to the horseshoe, and then ties it around the patient's ankle, virtue will emanate from the horseshoe, proceed to the patient, and cure him of various bodily ills. Suppose, too, the inventor should tell you he has discovered that, to have the thing work to the best advantage, the horseshoe must be placed in a bowl of ice water, or hung out of the window on a cold day, etc. Perhaps there are people who might be made to believe this; and if the belief were strong enough they would doubtless feel better, and may be get well, and perhaps give testimonials to the inventor of the apparatus. Now, Electropoise has just as much virtue, and is just as scientific, as the arrangement I have mentioned, and no more. And yet scores of testimonials are given, and a great part of them from prominent men or women. Some may occupy important positions in our nation, some with "Rev." attached to their name, and a few who have been entitled "professor." More of this anon.

One of the first indications you have of a downright humbug and swindle is the price charged. The proprietor of a patent medicine that costs him but little if any more than sugar and water, wants $1.50 a bottle; and he tries to make people believe that a dollar would not pay cost.

A few years ago a company started out making a patent fire-annihilator. It was some sort of liquid in fancy-shaped green or blue bottles. We wanted some for our factory, so we might put out a fire very quickly by simply smashing one of the bottles in the midst of the conflagration. The agent said the price was $24.00 a dozen; but in order that he might have our name to help him make sales he would furnish them to us for $18.00 per dozen, which was "only a little above cost." When our warehouse was burning I tested some of the bottles, and they were of no use whatever—that is, they were of no more use than a pint of salt water would have been under the circumstances. I tested the water, and pronounced it simply salty water. Then I compared its effects on blazing embers, with salt and water. It behaved exactly the same. Now, these fellows went to the trouble of making a public exhibition of their "discovery" for putting out fires. The whole thing was a put-up job and a fraud; and they managed it so well that even great railway companies equipped their offices with these cheap glass bottles, hanging conspicuously in sight. Two dollars apiece was the price charged for a five-cent bottle filled with salt water—one fourth off where prominent individuals purchased considerable quantities.

Well, the above is the way these swindlers manage right straight through. The big price is one of the features of the advertisements. The large size of Electropoise costs *only $50.00*. On the front there are some levers and buttons, probably to make people think there is some sort of current or virtue emanating from the thing. The pocket instrument costs *only* $25.00. It is about as large as the nickel-plated handle of an ordinary bicycle. The machinery inside is probably about as complicated. Ernest succeeded in getting the agent to let him take the thing in his hand. He soon discovered where there was a screw on one part of the machine, and was about to take the thing apart to see what furnished the $25 worth of "virtue." The agent became alarmed at once, and declared that the instrument would be spoiled (?) if it were opened.

The makers declare distinctly that the influence that comes from this thing is not electricity, but that it is "something" they have discovered themselves. Let us look at this a minute. There are at present known to science three imponderable agents — heat, light, and electricity. Only electricity passes along a wire—that is, any considerable length of it. If they have got something else that will run through a wire, or on a wire, like electricity, then they have discovered a new imponderable agent. If this be true, how does it come that the whole scientific world has never yet heard of it? and yet the thing was patented as long ago as 1891. By the way, I wish to call the Patent Office to order. One of the readers of GLEANINGS, about a year ago, wanted to get a patent on a flying-machine. He went to Washington, but they told him that he must make his machine *fly*, before he could have a patent. They admitted that they *used* to grant patents on things that had never been made to "go," but they did not do it any more; but yet in 1891 they granted a patent on a thing that did not "go," and does not go yet. A brief quotation from the circular they send out ought to be sufficient evidence of the true character of the thing to any intelligent person. I take the following from page 2:

> With either instrument, the treatment consists in the absorption of pure oxygen from the atmosphere into the circulation, in consequence of the polar attraction produced on the surface of the body by the Electropoise, the rapidity of the process being governed, when using the pocket instrument, by the temperature of the polarizer.

Now, if you are not sufficiently versed in chemistry and physiology to comprehend the above, take it to your family physician and ask him if I am not right about it. If you think he is prejudiced against it because it spoils his business of curing people, show it to the principal of any school or college where physiology and chemistry are taught; or submit it to any teacher, or even a pupil well along in these studies. Is there either sense or science in claiming that this charm has any power to absorb oxygen from the air, and get it into the circulation of the human system? What about the expression "polar attraction produced on the surface of the body," when they do not even claim there is any electricity present?

In the room adjoining we have a new paper-folder. The machine cost $700, and it does its work beautifully. There is, of course, a multitude of wheels, levers, cams, arms, etc.; and there are bits of glittering steel that work like human fingers, and with much greater precision and rapidity. Now, suppose the manufacturer of this beautiful machine had put in a lot of wheels and levers, and polished machinery, only to give the thing a taking look, but things that were of no sort of use whatever to the working of the machine. Suppose they were to put it in as a sort of excuse for asking a big price. I do not think any manufacturer of labor-saving machinery was ever guilty of such folly. They know better. People who buy machinery expect to use their eyes and ears and common sense: but the inventors of these remedies for disease seem to take it for granted that sick people are a class that never reason.

Now to the main point before us. How about the testimonials from ministers, and editors of Christian papers? I am *forced* to conclude that these people are careless and thoughtless. They do not know what they are doing, and, together with a great lot of suffering humanity, they have yet to learn that people often get better without taking any thing or doing any thing. Nature is untiringly at work in making good every wrong or every damage to the human system. Nature keeps up this incessant struggle whether you take medicine or not. It is the old story of bee-sting remedies over again. More than twenty years ago I tried to make the world believe that no outward application whatever for a bee-sting would do any good, yet thousands of people had remedies; and these remedies were faithfully used, and handed down from parent to children. They knew the remedy did good, because the pain often "stopped instantly" after the application, forgetting that the pain of a bee-sting usually stops instantly any way. Perhaps bee-keepers have finally decided that I was pretty nearly right, for we do not hear much about bee-sting remedies of late.

This is a large subject, friends. It would fill page after page of this journal were I to give proofs that have come under my own observation. A few weeks ago the *Scientific American* gave a case right in this line. Some professor had made a startling discovery of a new remedy, to be introduced into the circulation by hypodermic injection. Everybody who was treated received wonderful benefit. The matter was submitted to an old gray-haired veteran in the science of medicine. He directed the operators to give a part of the patients an injection of clear water, without telling them any thing of the experiment that was being made. Those treated with pure water received just as much benefit as those that had the new medicine. In fact, some of them were most emphatic in regard to the virtues of the wonderful discovery. Everybody was astonished at this except the old doctor. We need to recognize that our pains and aches are greatly the result of a mental condition.

When I was little more than a boy I used to give lectures on chemistry and electricity, and I sold little steel magnets for experimental purposes. I was greatly perplexed to find a large demand for them for curing rheumatism. Old gray-headed men had chunks of lodestone they had carried all their lives, to ward off rheumatism. In fact, money would hardly buy these innocent lumps of metal; and, in spite of all I could say, almost every evening somebody would insist that these little magnets *would* cure aches and pains. A man whose arm had been paralyzed and helpless for months, after receiving several shocks of electricity lifted up his hand and used it almost as well as the other. I too might have claimed "almost a miracle." But I was satisfied then, and I am now, that brisk rubbing or pounding the partially paralyzed limb would have been equally effective. Just look through the papers; look around in your own neighborhood, and you will find the vender of almost every patent medicine, whether he charges 25 cts. a bottle or $1.50 a bottle, gets, without any trouble, scores of wonderful testimonials. It may well make one feel sad when he sees a world of people giving their hard earnings in exchange for imaginary good. It seems impossible that any intelligent *physician* should give an honest testimonial to Electropoise; and I am firmly convinced that the one who does this is lacking either in sense or conscience.*

I wish to say a word in regard to the testimonials for patent medicines and similar things that come from *ministers of the gospel;* and may God give me grace to say what I have to say, in a right and proper spirit. I well remember the time, years ago, when I had decided that ministers, take them as a whole, had no comprehension of practical business or of real science and scientific truth; and there are a good many people now—some very good friends of mine—who declare that, from force of education, or something else, the clergy of our land fail to use *good common sense;* or, if the expression is not too hard, that they seem to *lack* good common sense in many practical every-day matters. Now, mind you, I have changed my mind in this thing; for the best and truest friends I have on earth are among these hard-working servants of God; but yet I remember my old feelings of hostility toward them, and it pains me to the bottom of my heart when I see them heedlessly give unbelievers *reason* to think them lacking in perception in business and scientific matters. I do not know of any thing more damaging to the cause of the Christian religion than to see a minister forget his sacred calling so far as to let his name be paraded in an advertisement for a fraud. Ministers, as a rule, do have more or less scientific education. They know more or less of physiology and chemistry; but, notwithstanding, they either forget this education, or they neglect to notice that the thing they indorse or recommend is at shameful variance with all text-books' teachings. It is urged that this is a progressive age, and that if one does not look out he is behind the times. Yes, this is a progressive age; but all real progress is made along the beaten path of science. People are not progressive in perpetual motion, nor in regard to the philosopher's stone, nor in the elixir of life, and suchlike remants of heathenism.

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* So far as I can discover, it is the religious press principally that gives place to this Electropoise advertisement. In fact, the only full-page advertisement I have seen was in a religious paper. Now, is it really true that the editors of our religious papers have less intelligence than the editors of our scientific and agricultural papers? or if they have the intelligence, have they less *conscience?* Why, friends, it is a fearful thing to contemplate, either way. This charge has been brought against the religious press before, that they will publish any thing they are paid for. Perhaps I should call attention to the *Sunday-School Times*, which takes a remarkably different stand in this respect. They even agree to make good the consequences of any swindle that may get into their columns; and many of the agricultural papers absolutely refuse to insert a medicine advertisement of any kind.

In conclusion, it is a sad reflection on the clergy as a class; nay, more—it is a sad reflec- on the intelligence and civilization of this present age, to see any one who professes to have a tolerable education accept the idea that a wire attached to such a bauble may bring "pure oxygen from the atmosphere into the circulation." Dr. Priestly, the discoverer of oxygen; Harvey, who discovered the circulation of the blood; and Farady, who made important discoveries in electricity, might be expected to groan in their very graves to think that, at this late date, ministers of the gospel, and college professors, should indorse such reasoning, and advise the world at large to invest their money in the "instruments."

OURSELVES AND OUR NEIGHBORS

By A. I. Root.

God is light, and in him is no darkness at all.—I. JOHN 1:5.

And this is the promise that he hath promised us, even eternal life.—I. JOHN 2:25.

Mrs. Root said, a few days ago, that young people, or people of middle age, might get along in this world tolerably well without any faith in an overruling Providence; but as we approach the decline of life, say after we are forty or fifty years old, humanity would be sadly off without the sustaining power and grace of a faith in God and his promises. I believe she is right. As we pass by youth and middle age, sooner or later we begin to be conscious of a failing strength and failing powers. We begin to look about us for something to lean upon; and I tell you, friends, we need something more than the support of a wooden staff. In studying humanity I have sometimes thought that we all need a reserve force of cheerfulness to draw on as occasion may make it convenient. Where I sit dictating I like to look at the great reservoir of water on the hill. The water stands within a foot of the overflow-pipe; and during this intense July heat it is not only convenient but comforting to realize that there is something like a reserve fund of 2000 barrels of water to draw on. There is so little wind that the mill stands almost idle, with the thermometer up from 96 to 98 in the shade. It is excellent weather for the farmers to gather their hay and grain, for the thrashing-machines can follow almost immediately after the modern harvesting appliances. But man and beast constantly feel the need of moisture. The big stone watering-trough is continually patronized. The thirsty horses begin to step with more energy as they catch sight of the well-known trough; and the driver springs from his big hay-rack with alacrity, and grasps the tin cup as he turns the hydrant. While the windmill is idle, a pump in the basement is worked by our steam-engine; and when no water is being drawn fom the hydrant, the surplus goes into our water-pipes, and accumulates in the great reservoir on the hill.

Of late, it is getting to be the fashion to have reservoirs for a surplus of other things besides water. Storage batteries are *almost* a success; and you know what I have said about storing up heat in the depth of winter so you can have some to draw on the next day. Well, since Mrs. Root's remarks I have been thinking of a storage battery for cheerfulness. I guess it had better be called faith in God; and my two texts at the head of this talk tell us why a faith in God will tide us over times of great trial. First, we are told, "God is light, and in him is no darkness at all." Oh, I am glad to find that passage in the Bible! for what should we do if there were nothing greater, stronger, and wiser in the universe than humanity? I have talked with some unbelievers who tried to make out that poor weak humanity is all-sufficient. The other part of our text tells us, "And this is the promise that he hath promised us, even eternal life." We need not be troubled, even if we *are* getting old, and if we begin to feel that our powers are failing, and that strength and energy are waning. Oh, no! for our faith is in him, and his promises are all true. The words "eternal life" do not mean simply living for ever; for if it did it would not be any comfort at all to the old veteran. One who reads his Bible knows that eternal life is something more than *existence* in this world of ours.

Now a word more about that reservoir of mine—that reservoir of faith—that storehouse where we have a great lot of cheerfulness put up for a time of need. Did you ever think what a boon a bright, cheerful disposition is? As you go through the world, how everybody seems to lean upon and take hold of the able and efficient man, and the man who is always cheerful and good-natured—the one who can set everybody to laughing just when there seems to be danger of a fight. Dear me! but haven't we had fights in earnest during this month of July? I have wondered sometimes whether these contending parties ever recalled themselves enough to look pleasant and good-natured, and be cheerful. One refreshing little incident occurred right in our own vicinity. The coal-miners struck for 65 cts. a ton. The proprietors of the mine were willing to give it, in order to let the work go on; but the Union would not allow the owners and workmen to go ahead, even if they were at an agreement. Well, when the strike was ended, what did the owners do? Why, they did all they proposed, and more too. They said, "You wanted 65 cts., and we agreed to give you that much; now here is 70 cts., and let's get to work, and be pleasant and good-natured about it." This is the kind of joke I enjoy; and I confess I was somewhat disappointed that I did not see more of it. I confess I *did* expect to see both capital and labor get ashamed of themselves and ashamed of so much quarreling; and I expected to see more exhibitions of the true American spirit of liberality. But, about that storage battery for cheerfulness.

My friends, you have no doubt attended funerals. For 24 hours or more you have felt it incumbent upon you to be sober, and to look solemn; but, unless I am mistaken, some of you forgot yourselves after two or three hours of long faces, and somebody perpetrated a little innocent joke, and every one laughed; in fact, the laugh was bound to come out, and I have sometimes seen it, even in the funeral procession. It did not make me feel cross, either. I feel glad to notice, especially among young people, a surplus stock of cheerfulness, and what you might call innocent fun, that could not be held in check, nor corked up many hours without bubbling out. Around my old home there used to be innumerable soft-water springs bursting out at the base of the gravelly hills; and in some of my early experiments I tried stopping a spring when it came out where I did not want it. For a while I thought I had succeeded; but, sooner or later, out it came, washing every thing before it. It would not be stopped. Our United States of America needs more people bubbling over with good nature in just this way; and the real foundation for this cheerful good nature that can not be put out or upset is a faith in God. In him is no darkness at all.

My friend, have you ever had any experience in the way of loss or sickness, when it was hard work to be pleasant and good-natured? May be you think I do not know any thing about it. May be you think I am always full of cheerful enthusiasm—always glad and happy about something or other. If it were true, I should have no chance to sympathize with some of the rest of you. You may remember I have written on this matter before—yes, several times.

Some time ago I had something to say in regard to getting over spells of despondency and lack of interest in any thing the world had to offer. The editor of some agricultural paper in the West wrote me a postal card, asking me if, among my writings, I could recall any thing else on the same subject. He said that, if I had ever before written any thing of the sort, he wished I would get it for him. He said he would pay me almost any thing for the trouble of looking it up. The card was placed on my table, waiting till I got time to look over the Home Papers I have written. Other requests were laid down with the card. Sometimes I would get at it and answer these kind letters. Then I would read the card over again. Well, it has been getting before me in a kind of reproachful way for months back. When I get a glimpse of it, it seems to say, "Please, Mr. Root, haven't you time to say just a word for those who get tired of living? Don't scold us; don't tell us we ought to be ashamed of ourselves. We know all that. We want you to tell us the secret of being good-natured and joyous all the time, even in this terribly hot weather, when one must work, even if he does not feel like it. What shall we do, if we have not at all times that bright, assuring faith in the Father above that you seem to have? What shall we do when something (you may call it Satan) seems to say to us that nobody is obliged to live and toil any *longer* than he chooses?" Such thoughts often come up to me. Of course, I reply that there is nothing in this world that can sustain a man through all sorts of trials except a humble faith and reliance upon Christ Jesus the Savior of mankind.

A few weeks ago I had an experience that seemed strange to me. I did not understand at the time what it meant; but it occurred to me afterward, that there might have been a providence in it. For one thing it gave me glimpses of what others may, perhaps, be called upon to endure in the way of temptation and trial. Perhaps I should call it mental suffering. As we grow older I think we are correct in saying that, as a rule, our digestion becomes impaired. Elderly people have to be more careful of their eating and drinking; and a deranged digestion, no doubt, has much to do with fits of despondency. I remember one hot day of going down through the creek bottom garden. Some way, that morning I did not feel very much enthusiasm for gardening. The crops were pretty fair, and prices were reasonably good; but things seemed to be getting rather monotonous. Even the large luscious strawberries did not revive my spirits. Several things had gone wrong. One man neglected something, and it threatened to cause a dead loss; another did the wrong thing; somebody else was very stupid. Very likely the small boys were throwing the peas at each other instead of putting them into the baskets. I made up my mind that I would just stop giving them employment, for they did not seem to appreciate the pains I was taking to furnish them something to do. As my thoughts ran on, one thing suggested another, and I got out of sorts. I was not happy, and even the thought of a wheel-ride in the afternoon did not make me feel happy. Before I knew it I was *exceedingly* miserable. I did not dare to say to myself that this world was not a pleasant one, because I knew I should be reflecting on the great God above. I prayed for grace from on high. It did not seem to come, however, just then. In fact, I had been struggling with similar feelings for several days, and this seemed to be the climax. I remember of thinking I was getting old, and perhaps I had better be getting rid of some of my cares and responsibilites. But what then? Very likely I should live a good many years; and I am sure I shall never enjoy life very much unless I can be busy. For instance, I remember of thinking—no, I did *not* think—the fact came up before me, but I did not accept it. It was to the effect that perhaps God did not propose to let me live very much longer, any way. I did not add, "The sooner the better," for I did not dare to do it. I have heard sick people give voice to such expressions, and in a sort of indifferent way at the same time. God forbid that I should ever be in a *hurry* to drop life's duties. I knew I was getting on dangerous ground. I knew, too, in general terms, where the trouble was. Within a few feet of me was a rank, vigorous growth of Country Gentleman sweet corn. The boys and men were far enough away so they could not overhear me while I knelt down in that rank-growing corn and told the Savior my troubles, and asked him to "create in me a clean heart, and renew a right spirit within me." I started for the corn; but somebody just then came in sight and called for me. I responded to the call, praying on the way. I proposed at the time to get by myself as speedily as I could, and ask to be lifted from that Slough of Despond by the only one in the whole universe who could do it. The dear Savior seems to have accepted the will for the deed; for a busy day followed the event I have recorded; and it was only at night that I recollected the dismal experience of the morning; and then I recalled the fact that God had taken the will for the deed, and that *unuttered* prayer had been answered—yes, several times. It was not answered, however, until I had determined to let *duty*, and not feeling and inclination, rule. And here is one grand secret of getting over such experiences, or, if you choose, such dismal spells of despondency—go right to work and *do your duty*. Do what you know you *ought* to *do;* be what you ought to *be*. If you can not do it with a smiling face, come as near it as you can. Not *self* shall rule, but God and humanity.

In the fourth chapter of the book I have been quoting from, there is much said about love to humanity along with love to God; and the chapter closes with the words, "He that loveth God, loveth also his brethren." Spells of despondency come because you have been acting *selfishly*—because you have been for some little time thinking of self and *gratifying* self. Such a course will make you miserable as sure as darkness follows day. We can not live in this world, and enjoy life and happiness, without loving those around us. We *must* love humanity; yes, we must love *unlovable* humanity. We must love people even if they persist in doing stupid things. We must love people, even if they are selfish and greedy. We must love people, even if they are low in their desires and ways. We must love the sinner while we hate the sins we see, and we must ask God daily and *hourly* to give us grace to see the sins and the unlovable traits in our *own* hearts; for we shall never see them unless we ask God to show them to us. I *know*, friends, for I have had experience. Whenever the faults of others keep coming up before you constantly and continually, it is a proof that your heart is bad. Get out of it; don't make a fuss about every little thing. Remedy the mischief and the loss, if it can be remedied, and be *pleasant* about it. If it can *not* be remedied, go ahead and let it go. There is too much useless crying over spilled milk in this world. If you have any enemies, love *them;* "do *good* to them that hate you," and you will never find yourself whining around because God has given you a human life to live, and a good *long* life too.

NOTES OF TRAVEL

BY A. I. ROOT.

ON THE WHEEL.

During my visit to the Experiment Station I particularly desired Prof. Green to let me see just what chemical fertilizers could do and were doing for farm crops; and then we drove to a particular part of the farm, with that end in view. First, there were plats of oats, or, perhaps I should say, strips clear through the field. The first strip was labeled "nothing"—that is, no fertilizer was applied. The next had a certain forumla applied, consisting principally of nitrate of soda, sulphate of potash, and dissolved boneblack. At the next strip we have perhaps the same chemicals, but in different proportions; and after three or four of the fertilized strips there would be one with nothing at all again, and so on clear through the field. Not only were the chemicals used in different proportions, but there were strips containing heavy and light quantities of the chemicals. I was greatly pleased to see that the chemicals did usually, without question, on the hard clay soil of the Experiment Station, show that they possessed virtue. In almost every case there was a marked improvement where the fertilizer was used. Every little while we had a strip where barnyard manure was used in varying quantities. These experiments were continued with different variations through a very wide field. Now, there is no question but that these chemicals, in almost any combination, produce some increase of crop—at least on the Experiment Farm. Friend Green cautioned me, however, about jumping at conclusions. He said an increase of growth did not always necessarily mean an increase of grain. Again, the fertilized piece would sometimes make quite a show in advance of the unfertilized, during the fore part of the season; but later the unfertilized would catch up.

I was very anxious to know whether the result would not be just as favorable with the potash omitted, and we very soon came to a place where first one and then the other of the ingredients was left out, and the result seemed here at the Station much as on my own grounds at home. The omission of the sulphate of potash made little or no change in the result; and several times the omission of the nitrate of soda also seemed to make little or no difference, thus pointing pretty conclusively to the fact that the dissolved boneblack was really the valuable ingredient in the fertilizer—at least, for this class of clay soils; and I believe this boneblack constitutes a half or more of the principal fertilizers now in use.

Another clear fact exhibited itself on the plots of wheat. In some cases the wheat seemed to be almost equally good where no fertilizer was used at all; but come to look down close to the ground, and the fertilizer that seemed to have little or no effect on the *wheat* had produced a rank growth of orchard-grass and various kinds of grassy weeds. The evidence was very clear and plain; for where no fertilizer was used, this dense undergrowth was almost entirely wanting. Now, is it possible that the fertilizer would have produced some good result on the wheat had the ground been free from seeds of these various grasses? Is it not also possible that the chemical fertilizer may really injure a growth of grain by stimulating other plants among the grain — or, if you choose, making the grain crop more weedy?

I was still more interested in seeing the potato experiments, especially where we had a strip through the field where different quantities of potato-fertilizer were used. *Nothing*, showed very ordinary potatoes; 200 lbs. per acre gave a marked and decided advantage, in tops at least, over the unfertilized; 400 lbs. showed a still more luxuriant growth, and so on clear up to half a ton per acre. Why, the difference had made these potatoes start up so as to make almost a regular series of stairs.* The more potato-manure used, the larger the growth of foliage. There is no mistake about this; and any farmer in the State of Ohio can go and look at it as I did. But we must not be hasty in our conclusions. A large growth of *tops* does not necessarily mean more potatoes, so friend Green told us. As a general thing it does indicate larger and finer tubers; but even if we succeed in getting larger and finer tubers, a serious question confronts us: Are the potatoes enough better to pay the cost of the fertilizer? With potatoes at a dollar a bushel, there is a chance, and a pretty good one, that the fertilizer may be a good investment; but with potatoes at 40 cts., or even less, the purchase of fertilizer is a risky business. If I am not wrong, the potato experiment showed, as did the experiments with oats and wheat, that the dissolved boneblack was the principal element needed in our soil. Dissolved Carolina rock, or almost any of the preparations of bone, are of value, but none of the salts of potash, nor even the nitrate of soda, seems to be very much needed on our Ohio clay soils. Prof. Green, or somebody else, told me there was potash enough on our clay farms to meet all demands, even with constant cropping, for years to come; and this I have pretty well demonstrated on my own ground. Even hard-wood ashes do not seem to be of much account. On the low muck lands of Ohio, however, where there is a great surplus of vegetable humus, the whole thing seems to be changed, and ashes may be applied in almost any quantity, with beneficial results.

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*It may be well to explain that each of the test plots of potatoes consisted of five rows, and each row a different kind, so the effect of the fertilizer could be seen on more than one variety of potatoes. All of them responded to the potato-manure, and each responded about alike, so far as I recollect.

I was greatly interested in looking at different kinds of new small fruits—gooseberries, currants, raspberries, etc. For the first time I saw some bushes of the Crandall currant loaded with fruit; but on our ground a clump of bushes now higher than my head, and perhaps six feet across, have never given a handful of fruit all together in the past five years. Some of the Crandall currants bear fruit and others do not. The Success Juneberry was also loaded with green berries; and we agreed that it was a "success" indeed. The birds are so fond of the fruit, when they discover it, that you will have to fight for your berries. We got just one picking from our bushes at home before the birds had a taste of them. They are large and luscious, and even more beautiful than huckleberries; and if we can fence off the birds, or have a plantation large enough so the birds can not consume all of them, they can surely be raised as cheaply as currants. There were many other new fruits that are advertised in the catalogs; but none that I remember of that our station is as yet ready to recommend.

Of course, they are testing the Gault raspberry. A dozen plants there looked much like mine at home, except that mine have made a much better growth. The Experiment Farm, you see, does not propose to manure things to the extent we do on our rich creek-bottom ground. Since that visit, friend Green and myself have paid Mr. Gault a visit. His first crop of Gault raspberries was wonderfully large and fine. Prof. Green suggests, however, that the late crop will probably depend a good deal on the thorough cultivation and care given by Mr. Gault; and, again, even though one succeeds in producing a big crop of superior raspberries all along through the fall, will people care so very much about them when they have peaches, pears, grapes, and fruits of all kinds in such abundance? This remains to be seen.

At this last visit at friend Gault's, when it was time for the train to leave I was not ready to go; so I took my chance of riding home on the wheel. When I was ready to start, it was 20 minutes after 4; but I made the 32 miles before dark, and greatly enjoyed it. By the way, these long trips on the wheel have given me an excellent opportunity of testing the sustaining power of different articles of diet; and I take pleasure in saying that I still find there is nothing equal to milk. Much has been said in regard to beefsteak. As a test, I paid 35 cts. for a good-sized porterhouse steak, and managed to consume it all before I started on my 30-mile trip. My strength gave out when only half way home; and I reinforced it with some crackers and cheese. At another time I made 30 miles easily with nothing but crackers and milk, with some nice apple-sauce made from Red Astrakhan apples. The apple-sauce helped to make up a "balanced ration." The crackers I prefer are what are termed "flakes." Give me plenty of these with sauce made of nice apples, rather tart, and a good-sized pitcher of milk, and I am good for 30 miles or more, whether it be morning, noon, or night.

HIGH PRESSURE GARDENING

RASPBERRIES—A LETTER FROM PROF. GRANNIS.

Being invited by my friend A. I. Root to give some of my experience in raspberry culture I send the following:

About eight years ago I bought 3000 Gregg plants, and set them on low, black, rich bottom land. The plants grew with great vigor, but bore no berries. After three years, vainly hoping and working, the piece was plowed up, and a humiliating failure recorded; but enough plants were saved to set a side-hill of poor soil—clay and gravel mixed—about an acre. When these were one year old they gave us a crop of about 15 bushels of large, beautiful berries. We had no trouble to sell them at 8 cts. per quart. The next year we sold about $90 worth, and the third year $130 worth from the one acre. By this time the neighbors had found that Gregg raspberries at 8 cts. per quart were about the cheapest fruit they could buy, and the demand kept ahead of the supply. In fact, the greatest trouble we had was to keep the peace, as there were four times as many buyers as berries. Being a schoolteacher, and not used to farming, I had made a failure of almost every thing, and was getting deeper in debt all the time. One hundred and thirty dollars from one acre opened my eyes, and I set two acres more, and began to experiment with other varieties. As the crop increased, the demand increased; and the number of the disappointed ones was so great that I vowed I would supply the home demand or perish in the attempt. That vow has been faithfully kept, and I now have 16 acres of raspberries set out, and all are doing well, with hardly a trace of anthracnose or any other disease. This year we picked and sold 40 bushels in one day, bringing us nearly $100. On that day we sold 25 bushels at the field at $2.50 a bushel, and the rest were sold in adjoining towns, without any trouble or worry.

I have always had the fear that I could not sell the berries if I raised them. One of my neighbors said I was ruining my farm, and he would prosecute any one who would set his fields to brambles. He is now harvesting about 40 acres of 48-cent wheat, and says no more against brambles.

The varieties that do me the most good are, first, Gregg for late, and Hilborn for early. The Tyler (or Souhegan) and Palmer are very much alike, growing low and sprawling, and are most affected by anthracnose; while the Hilborn, with me, is entirely free — a tall, vigorous grower, and enormous yielder of berries, next to the Gregg in firmness.

We picked our first picking from the three above-named early varieties on the same day, although a few Palmer and Tyler berries ripened a day or two first.

The great question, "Can farming be made to pay?" is settled for me in the affirmative; and the wolves that once howled at the door have taken their departure. I want to state here, that some of the courage and inspiration came to me from visiting the home of A. I. Root, and seeing the success he was having, and the good he was doing in making work for so many, and in furnishing fresh, health-giving fruit to Medina. May his prosperity continue.

I now have out one acre of strawberries, one acre of currants, one and a half of blackberries, and sixteen of raspberries. The work of caring for them is very light, and to me, very pleasant.

It is folly to be without fruit in its season, when it is so easily raised. W. R. GRANNIS.

Lodi, O., July 23.

[Perhaps it is no more than fair to inform our readers that, when the article above was written, friend Grannis had not seen our last issue. This would account for some trifling repetition.—ED.]

SPECIAL NOTICES
FROM
BUSINESS MANAGER

BEESWAX DECLINED.

Until further notice we will pay 22 cents cash, or 25 cts. in trade, for average beeswax delivered here. This is a reduction of 1c a lb. from last quotation. Be sure you put your name and address in shipments of wax sent to us, and advise us by mail at same time.

CARLOAD SHIPMENTS.

We shipped a carload of goods last week to Colorado, consisting mostly of honey-cases and cantaloupe-crates, and some foundation and sections. There seems to be a fairly good crop of honey in that State this year, judging from a few reports received, and the demand for goods in that section.

HONEY-CASES.

While we expected to be shut down during July and August, we have been obliged to keep going on full time, making up goods required on orders. We have made many thousand shipping-cases for comb honey; and, judging from the demand on us for these, there must not only be a pretty fair crop of honey, but the cases we furnish must meet the bee-keepers' needs in style, quality, and price. See page 30 of our catalog for full description and prices.

THE VERY BEST GRADES AND WARRANTED TO BE PURE

HONEY

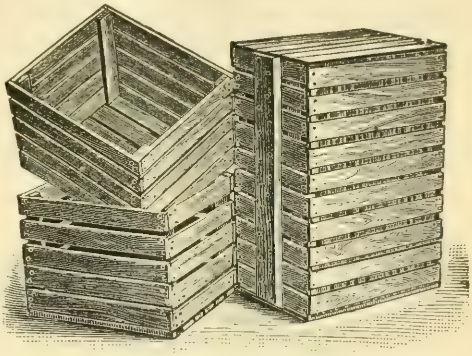
ADDRESS
A. I. ROOT,
MEDINA, OHIO.

Choice white comb, 1-lb. sections. 16c per lb. in 100-lb. lots. Choice extracted in 60 lb. cans, 9c per lb; 2 cans in a case, 8½c; lots of 2 cases or more, 8c. White-sage honey, crop of 1893, ½ c per lb. less. Most of the comb and extracted we are able to secure is from basswood, as there was little gathered from white clover this year.

HONEY-PACKAGES.

Demand for new honey is opening up quite briskly, and we have been shipping comb about as fast as received, and we are sold ahead on extracted. We handle extracted only in 60-lb. cans; have had some offers in kegs and barrels, which we could not accept on account of the package. I believe if all honey-dealers once learned the comfort and convenience of handling honey in 60-lb. tins they would not tolerate kegs and barrels. In so far as handling is concerned, there is no doubt that kegs and barrels will roll, and thus move about more easily than the tins boxed. But it is the leakage from kegs and barrels which makes us constant annoyance and loss. We recently received a sample half-barrel of old honey. It arrived without leakage, because candied solid. We set the barrel in our tub of water to heat and liquefy, not noticing that some of the chimes were broken. Before we discovered it, and before the honey was fully melted, over ten per cent had leaked out into the water, and we had a swarm of bees after the sweets. We become more opposed every year, by some such experience, to handling honey in kegs. It is true, they cost a little less than cans; but I will venture to say that more honey is lost in leakage to pay the difference. We were chosen umpire in several cases of dissatisfaction last season, where honey had been shipped in barrels, and had reached the consignee more than half lost by leakage. In one case there was only 15 lbs. of honey left in a large barrel. It is well enough to put low grades of honey, which are used in manufactures, into barrels if they are well coopered; but to us it seems foolish to put choice extracted honey up in kegs or barrels when the 60-lb. cans are so much superior. Some one says, "It's all very well for you to run down kegs and barrels, and advocate cans, when you sell the latter. It is simply self-interest to do so." We say emphatically, it is *not* self-interest, but our honest convictions, regardless of the consideration whether we do or do not sell cans. For that matter, we sell barrels and kegs as well, to those who will have them; and we have as much margin on their sale, so that, whether we sell this or that package, has no effect whatever on our convictions formed by years of experience with different kinds of packages. The experience of others may differ from ours, and we should be glad to get the views of those who have handled honey in considerable quantities as to the best package to use.

BUSHEL BOXES.



The above cut shows our popular *all-slatted bushel box*. We have two other styles; one has slatted bottom and sides with solid ends in three pieces called the *slatted bushel box*. The other has solid ends and close bottom and sides, and is bound with galvanized iron and called the *galvanized bound box*. These boxes were devised by T. B. Terry for handling potatoes, for which purpose nothing could be handier. The potatoes are picked up into the boxes in the field and left in them till sold. Other crops, such as cucumbers, tomatoes, and apples are being handled in these same boxes. They are of such a size that two go crosswise in an ordinary wagon-box. Outside measure is 14¼x16⅞x12½ deep, and they hold a bushel of potatoes level full so they can be piled one upon another. The above cut shows two *all-slatted* boxes nailed up, and a bundle of 15 alongside; 13 of the 15 are in the flat, packed inside the other two, and nails of the proper kinds are included. The *slatted* and *galvanized bound* boxes are put up in the same way, except there are only 12 in a package instead of 15. Each package weighs about 85 to 90 lbs.

PRICE LIST.

All-slatted bushel box, per crate of 15........ ..	$1 50
Slatted bushel box, per crate of 12.............. ..	1 50
Galvanized bound bushel box, per crate of 12....	2 10

In lots of ten crates, 5 per cent discount will be deducted. Price each, nailed, 15, 18, and 22 cents, respectively. A 20-page pamphlet called Handling Farm Produce, telling all about these boxes, mailed free on application.

FOR SALE, 66 COLONIES OF BEES, In lots to suit, in good condition (Italians and hybrids) also lot of Dovetailed hives, wax and honey extractors, etc., complete inside furniture for all hives. Langstroth frames. Address

BENJ. B. GRISWOLD, Jr.,
Catonsville, Balt. Co., Md.

Queens! Queens!

Now ready by return mail.

Bred in full colonies from the best honey-gathering strains in the country. All queens warranted purely mated, and safe arrival guaranteed. I have three distinct strains—golden yellow and dark leather-colored Italians, also Albinos.

Tested, each	$1.50
Tested, per ½ doz	7.50
Warranted, each	.75
Warranted, per ½ doz	4.00
Warranted, per doz.	7.50

Send for 44-page descriptive catalogue.

W. W. CARY, Colrain, Mass.

5-Banded Untested Italian Queens

For the balance of the season at 50 cts.; tested, $1.00; breeding-queens, *the very best*, $1.50. These are Doolittle's strain, and are golden beauties. Fine tested, from imported Italian mothers, 75c. Safe delivery. Money-order office, Decatur.

Cleveland Bros., Stamper, Newton Co., Miss.

Will you please mention GLEANINGS ?

Imported Carniolans, bred in 1893, $5 each; tested 1894 Carniolans in June, $2; bred from imported queens producing only gray bees. Untested, May, $1. Foreign orders, $6, $3, and $2. Safe arrival at any postoffice in the world.

MRS. FRANK BENTON, Charlton Heights, Md.

Bees and Queens.

I am now prepared to fill all orders on short notice at the following low prices:

Untested queen	$ 75
6 untested	4 00
1 1-frame nucleus.	1 00
1 3-frame nucleus.	2 50
Bees by the pound	75
1 to 5 colonies	6 00

Queens wanted with nucleus, add price.

E. A. HARRIS, No. Petersburg, Renss Co., N. Y.

Tested Queens,

Raised last fall from my choice Italian stock, yellow and unsurpassed workers,

75 cts.

Ready to ship now. Hybrids, 25 cts.

J. A. GREEN, Ottawa, Ill.

World's Fair Medal

Awarded my *Foundation.* Send for *free samples.* Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free* Illustrated Price List of every thing needed in the apiary.

Bell Branch, Mich. **M. H. Hunt.**

TESTED ITALIAN QUEENS, $1.00 each; Select tested, $1.50; untested, 65 cts. Two-frame nucleus, with tested queen, $2 00; with untested queen, $1 50. Queens ready April 1.

Stewart & Cooper, Quebeck, Tenn.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

PAGE & KEITH,
8tfdb New London, Wis.

BBB'S! If you keep *BEES*, subscribe for the **Progressive Bee-keeper**, a journal devoted to Bees, Honey, and kindred industries. *50 cts. per year.* Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address

LEAHY MFG. CO., HIGGINSVILLE, MO.

Woodcliff A No. 1.

In order to introduce my strain of beautiful yellow *Woodcliff Queens,* which are bred from an imported leather-colored Italian crossed with the best 5-banded stock I can procure by *Doolittle* method, I will sell *guaranteed* purely mated untested queens at 75 cts. each. As I produce large quantities of comb honey, I breed principally for large honey-gatherers. Apiaries near Philadelphia. Address

WM. A. SELSER, Wyncote, Pa.

☞In responding to this advertisement mention GLEANINGS.

Golden Italian Queens.

½ doz. untested queens	$4 00
1 doz. untested queens	8 00
Fine queens for breeding purposes	3 00

Sample of bees upon application. I can please you. Send a trial order.

J. F. MICHAEL,
German, Darke Co., O.

☞In responding to this advertisement mention GLEANINGS

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**
1-23o Ottumwa, Ia. South side.

Warranted Queens, 75c.

Five-band strain, bred for *business*, six for $3.25; dozen for $6.00. See former *ads.*, and send for circular. Safe arrival and satisfaction *guaranteed.* **J. B. CASE, Port Orange, Fla.**

☞In responding to this advertisement mention GLEANINGS

STRONG, FULL COLONIES

of Pure Italian Bees, in Root's new Dovetailed hive, after June 1, only $4.00 each.

N. A. KNAPP, Rochester, Lorain Co., O.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,
12tfdb Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

☞In responding to this advertisement mention GLEANINGS

SPECIAL OFFER FOR THE NEXT 60 DAYS.

Untested 5-banded queens, 50 cts. each; six, $3.00; warranted, each, 60 cts.; six, $3.50; tested, 75 cts. Reference, A. I. Root.

Leininger Bros., Ft. Jennings, O.

☞In responding to this advertisement mention GLEANINGS

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

Square Glass Honey-Jars.

REDUCTION.

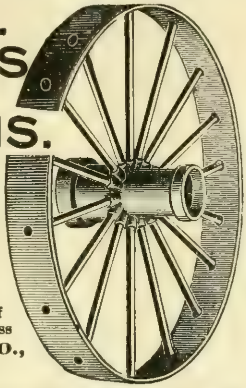
Have just received a carload of Honey-jars which we offer at a discount of 5 per cent on all orders of two gross jars or over, and at a discount of 10 per cent on all orders of five gross or over, off list prices. Send for catalog.

CHAS. F. MUTH & SON,

976 & 978 Central Ave., Cincinnati, Ohio.

☞In responding to this advertisement mention GLEANINGS.

METAL WHEELS for your WAGONS.



Any size you want, 20 to 56 in high. Tires 1 to 8 in wide—hubs to fit any axle. **Saves Cost** many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires. Catl'g free. Address

EMPIRE MFG. CO.,
Quincy, Ill.

☞In responding to this advertisement mention GLEANINGS.

Promptness is What Counts.

Honey-jars, Shipping-cases, and everything that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping-point in the Country.** Dealer in Honey and Beeswax. Catalog free.

WALTER S. POUDER,

162 Massachusetts Ave., Indianapolis, Ind.

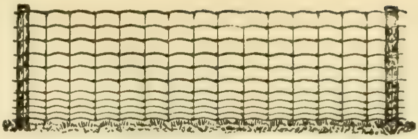
Please mention this paper.

Cash for Beeswax!

Will pay 22c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 30c per lb., or 32c for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio



PAGE FENCE ORDERED OUT.

57 Miles Called for in Last Two Days, To Go Into Immediate Service.

July has heretofore been the dull month for fence business, but now that the railroads are taking hold, it goes all the year 'round. A local agent wants 900 rods "quick," and fears he is to have no vacation this year. A hint to the wise is sufficient.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

☞In responding to this advertisement mention GLEANINGS.

Bees and Supplies

Always on hand. Send for circular.

I. J. Stringham, 105 Park Place, N. Y.

FOR SALE, 66 COLONIES OF BEES,

In lots to suit, in good condition (Italians and hybrids) also lot of Dovetailed hives, wax and honey extractors, etc., complete inside furniture for all hives. Langstroth frames. Address

BENJ. B. GRISWOLD, Jr.,
Catonsville, Balt. Co., Md.

CARNIOLAN QUEENS

We have made arrangements whereby we can furnish Carniolan queens at the same prices as for Italians; viz., untested, during this and the next two months, 75 cts. Select untested, $1.00. Tested, $1 50. Select tested, $2 50. We place our own guarantee upon these queens, and feel sure they will give satisfaction to those who desire the gray Carniolan stock. We are also prepared to furnish untested three-banded Italians and four and five banded queens at the same prices. We will also furnish tested Italian queens of last year's raising at the same price as untested as long as they last. Any of the above-mentioned queens, of the plain untested, or last year's tested, and one new subscription to GLEANINGS, $1.50.

A. I. ROOT, Medina, Ohio.

FOR SALE!

Second hand shoemaker's tools. 29 finishing and burnishing tools; 21 pairs lasts; 16 awls, scrapers, and gouges; 3 peg scrapers; 2 whetstones; 1 knife; 2 hammers; 1 clamp; 2 boot trees; 3 measurers; 1 iron last; lap stone, lap board, thread, pegs, and loose awls; 1 work-bench with drawer and leather seat. Would cost new nearly $25. If taken within 30 days will take $7. The first two items ought to be worth more than price asked for all. MRS. MARY SPEIER, E. Perry St., Tiffin, O.

☞In responding to this advertisement mention GLEANINGS.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

FULL LINE OF

BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

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CONVENTION NOTICES.

The bee-keepers of Utah will hold their semi-annual convention at Salt Lake City, Oct. 4 1894. J. C SWANER, Sec.

The Quarter Centennial Meeting of the North American Bee-keepers' Association will be held at St. Joseph. Mo., Oct. 16, 17, 18, 1894. It is the first convention of the N. A. B. K. A. beyond the western bank of the Mississippi and large delegations from the great West will be present. We hope the East, the North, and the South will gather with them.

FRANK BENTON, Sec'y.
U. S. Department of Agriculture, Washington, D. C.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge. After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Fine young hybrids and mismated queens from natural cells, 20 and 30 cts. each.
C. G. FENN, Washington, Conn.

Twenty mismated Italian queens, most of them three and four bands; they can work red clover; 30 cts. each; 4 for $1.00.
G. R. ROUTZAHN, Menallen. Adams Co., Pa.

About 10 black and hybrid queens that I traded for, 25c each; all appear to be good laying queens.
P. J. THOMAS, Fredonia, Kan.

Yellow to tip mismated queens from Doolittle's best breeder, 25c; 5 for $1.00.
H. G. QUIRIN, Bellevue, Ohio.

Thirteen hybrid and mismated queens of this and last year's rearing, at 25c, or 5 for $1.00. Some have one wing clipped.
J. P. F. SMITH, Liberty, Clay Co., Mo.

90 PER CENT PURE
Business Queens.

On account of a few hybrid drones that may be flying in the air this year I will sell my all-golden-to-tip queens, untested, unwarranted, but am satisfied 90 per cent are purely mated and will produce 4 and 5 banded bees, at 50 cts. apiece. Order some, test them, and be convinced.

WM. A. SELSER, Wyncote, Pa.

☞In responding to this advertisement mention GLEANINGS

California Dried Fruit.

I have for sale over two tons of dried Apricots, and am permitted to refer to A. I. Root in regard to the good quality of my product. Price 8 cts. per lb. here; or if you will write me where you are located I will give prices by the barrel, delivered at your station.

WM. STEVENSON,
80 Orange Grove Ave. ***Pasadena, Cal.***

Woodcliff A No. 1.

In order to introduce my strain of beautiful yellow ***Woodcliff Queens,*** which are bred from an imported leather-colored Italian crossed with the best 5-banded stock I can procure by ***Doolittle*** method, I will sell ***guaranteed*** purely mated untested queens at 75 cts. each. As I produce large quantities of comb honey, I breed principally for large honey-gatherers. Apiaries near Philadelphia. Address

WM. A. SELSER, Wyncote, Pa.

Adel Queens and Bees.

A new strain of beautiful yellow-banded bees. Queens, each, $1.00.

H. ALLEY, Wenham, Mass.

Colonies Italian Bees in Langstroth 10-frame hives, $3.50. Bees, 60c a lb. Tested Italian queens, 60c; untested queens, 50c. Can send at once. Address
Otto Kleinow, 118 Military Ave., Detroit, Mich.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange yellow Italian queens, or nuclei of bees, for foundation or 1-lb. sections.
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

WANTED.—Parties having extracted honey for sale to send to my address sample and price. Give name of kind of honey. W. T. ZINK,
Nichols, Greene Co., Mo.

WANTED.—To exchange one new and several extra good second-hand bicycles, and 500 60-lb. screw-cap cans, for choice comb or extracted honey. Mail sample. J. A. BUCHANAN & SON,
Holliday's Cove, W. Va.

WANTED.—To exchange for extracted honey one Simplex incubator and brooder combined, 160 eggs. One Noxal brooder, 200 chicks, used only one season, price $20.00. J. T. VAN PETTEN,
Linn, Kan.

WANTED.—To exchange White and Brown Leghorn thoroughbred poultry for any thing useful.
JOHN W. WAGNER, 3401 S Grand Ave., St. Louis, Mo.

WANTED.—To exchange for honey, foundation, or offers, 75 hives at 30c each, f. o. b. Joliet.
V. E. FREEMAN, Joliet, Ills.

WANTED.—500 Greenville strawberry-plants or offers. J. F. MICHAEL, German, Darke Co., O.

WANTED.—To buy quantity lots of white comb and dark extracted honey. B. WALKER,
Evart, Mich.

WANTED.—To exchange four-horse engine and boiler, upright boiler and horizontal engine, Ft. Wayne pattern, in good order, with new grates and smokestack, for extracted honey or offers.
W. H. WORLEY, 7th and Johnson St., Keokuk, Ia.

HONEY COLUMN.

CITY MARKETS.

BOSTON.—*Honey.*—We quote you our market on 1-lb. comb honey at 14@16; extracted honey at 5@6. Demand light. Beeswax wanted; none on hand.

E. E. BLAKE & CO.,
Aug. 10. Boston, Mass.

CLEVELAND.—*Honey.*—Little demand for either comb or extracted honey at this time. No. 1 white 1-lb. sections are selling at 13c per lb. Beeswax, prime, 25c.

WILLIAMS BROS.,
Aug. 8. 80 & 82 Broadway, Cleveland, O.

ST. LOUIS.—*Honey.*—Market inactive. Stocks are light. We quote comb, 10@14; extracted, in barrels, 3½@4; in cans, 5@5½. Prime beeswax, 25½.

D. G. TUTT GROCER CO.,
Aug. 9. St. Louis, Mo.

NEW YORK.—*Honey.*—Our market is well supplied with extracted honey of all kinds, and trade remains quiet. White clover and linden, 6@6½c; Southern, 50@65c per gal., according to quality. A few lots of new comb honey arrived, but the trade for these goods has not opened up yet. In the next issue shall be able to name prices. Beeswax quiet and easy at 26½@27c.

HILDRETH BROS. & SEGELKEN.
Aug. 11. 28 & 30 West Broadway, N. Y.

KANSAS CITY.—*Honey.*—Demand is slow for all grades and kinds of honey. A few cases of new received. The range of prices is 5@7c for extracted. Fancy white 1-lb. comb, 15@16c; amber, 12@13; dark, 10. Beeswax, 22c.

HAMBLIN & BEARSS,
Aug. 10. Kansas City, Mo.

BUFFALO.—*Honey.*—As is usually the case at this time of the year, it is too early to encourage shipments of liberal amounts of honey; but we can place quite a quantity right along of strictly fancy No. 1 at about 12@13, and other grades proportionately lower. There is no demand as yet for extracted honey, and very little at any time of the year. We can not encourage shipments of extracted honey at any time, although we can sell it at some price, of course; and those who can not do better can forward it, and we will do our best with it. We shall need a great deal of fancy honey during the season, and will advance two-thirds on it.

BATTERSON & CO.,
Aug. 9. Buffalo, N. Y.

CHICAGO.—*Honey.*—Comb honey is coming forward, and best consignments sell at 15@16 cts. per lb., with a very good demand so far, extracted ranging from 5@7, as to kind and quality. Beeswax, 23@25.

R. A. BURNETT & CO.,
Aug. 9. 163 So. Water St., Chicago, Ill.

MILWAUKEE.—*Honey.*—The honey trade continues small; demand for both sections and extracted is quiet. The supply of old is well cleared off and we are in good order for new crop; but while so much fresh fruit takes the taste, honey is not called for; yet we expect a fair trade to follow. We now quote 1-lb. sections, white, in cases, 14@15; 2d best, 12@13; extracted, in barrels and kegs, 6½@7½; in cans, 7@7½. Besswax, 23@26.

A. V. BISHOP & CO.,
July 31. Milwaukee, Wis.

CINCINNATI.—*Honey.*—There is a slow demand for extracted honey at 4@6 cts. per lb. on arrival, according to quality. Demand is good for comb honey at 13@15 in the jobbing way for choice white. Arrivals are insufficient. Beeswax is in fair demand at 20@23 for good to choice yellow.

CHAS. F. MUTH & SON,
Aug. 9. Cincinnati, O.

SAN FRANCISCO.—*Honey.*—Our market is almost bare of comb honey, and stocks of extracted are light; but the trade so far has been mostly of a local nature only. We quote white extracted honey at 6¾; light amber, 6¼@6½; amber, 5½@5¾; with no demand, however, for the latter grade. Comb honey, 1-lb. frame, white, 12@12½; amber, 8@9.

SCHACHT, LEMCKE & STEINER,
July 28. San Francisco, Cal.

KANSAS CITY.—*Honey.*—A few shipments of new honey in the market. We quote No. 1 white 1-lb., 15@16; No. 2, 13@14; No. 1 amber, 14. Extracted, 5@7. Beeswax, 22@25.

CLEMONS, MASON & CO.,
Aug 10. Kansas City, Mo.

DETROIT.—*Honey.*—Best new comb honey, 15 cts., with very little in sight. Extracted. 6@7. Beeswax, 24@25.

M. H. HUNT,
Aug. 9. Bell Branch, Mich.

Alfalfa honey, very white, "dead ripe," thick and rich; $8.25 for two 60-lb. cans. Address

OLIVER FOSTER, Las Animas, Colo.
(Late of Mt. Vernon, Iowa.)

FOR SALE.—Choice white-clover comb honey, 14c; other grades less.

A. P. LAWRENCE,
Hickory Corners, Barry Co., Mich.

WANTED.—Comb and extracted honey. Will pay cash. Make offers and state quantity.

JOS. NYSEWANDER, Des Moines, Ia.

5 tons choice comb honey for sale in 1 and 1¼ lb. sections at 12 and 11 cts. per lb.; 24 sections in each (show) case; good goods in 200-lb. lots, f. o. b.

S. J. SMITH'S APIARY AND STOCK-FARM,
Padelfords, N. Y.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

EDWIN ROBINSON. W. M. GRAY.
ESTABLISHED 1866.

Robinson & Gray,
SUCCESSORS TO
B. F. Southwick & Co.,
Foreign and Domestic Fruits, Canned Goods.
47 & 48 South Market and 5 & 6 Chatham Streets.
Headquarters for Vermont Shipments
of White-Clover Honey.

It will be the endeavor of the new firm to meet the wishes of their patrons in the future as the late firm has in the past.

Thanking you for the many past favors received by the late firm, we hope to be favored with a liberal share of your patronage in the future

All orders and inquiries by mail or otherwise will receive prompt attention. Very respectfully.

Boston, April 2, 1894. ROBINSON & GRAY.

☞In responding to this advertisement mention GLEANINGS

THE VERY BEST GRADES AND WARRANTED TO BE PURE
HONEY
ADDRESS A·I ROOT MEDINA OHIO.

Honey is being offered freely, and we have bought a number of lots, but have secured very little so far except basswood, or that of which basswood forms the largest part. We have received one lot of choice York State comb in cartons, which we offer at the same price as the rest. We quote choice white comb honey, 1-lb. sections, 16c, in case lots or more; 200-lb. lots or over, 15c per lb. Choice extracted honey, in 60-lb. cans, 9c per lb.; 2 cans in a case, at 8½; or lots of 2 cases or more, 8c. We have some 20-gallon kegs of choice Wisconsin honey, which we offer in keg lots or more, 235 to 240 lbs. to the keg, at 7½c per lb., f. o. b. here. If your bees did not gather enough to supply your home market, let us hear from you. Others have secured more than the home market requires, and we can help to even things up a little.

A. I. ROOT, MEDINA, OHIO.

Queens by Return Mail.

I am now caring for a large lot of queens by the Atchley plan of giving each queen three unfinished sections of honey and a handful of bees. This keeps the queens fresh and healthy, yet in the best possible condition for shipment, while it enables me to fill orders by **return mail.** One untested queen, 75 cts.; six for $4.00; one tested queen, $1.00; six for $5.00. Any one buying a queen can have the Review one year for 75 cts.

W. Z. HUTCHINSON, Flint, Mich.

Daughters of one of ***Doolittle's*** best 5-banded breeders, mated to the choicest drones from Jennie Atchley's 5-banded strain, thereby securing a direct cross with the best 5-banded stock obtainable. Untested, 50c; 10 or more, 40c; tested, 75c; selected extra yellow, $1.00. Safe delivery and satisfaction. Money-order office, Monongah. P. O. address, Worthington, W. Va. **L. H. ROBEY.**

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's strain of Italians,** the result of 15 years' careful breeding.

Dr. O. S. Brown, Londonderry, O., says:

I bought queens of you in 1891, and they have shown themselves to be of the best for honey-gathering.

Warranted queens, 80c each; 3 for $2.00. Tested queens, $1.00 each. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 666 queens. Circular free. eitf

J. P. MOORE, Morgan, Pendleton Co., Ky.

☞In responding to this advertisement mention GLEANINGS

QUEENS. Tested, $1.00; 6 for $5. Warranted, 75c; 3 for $2. Breeders, the very best, $2.00. Straight 5-band, $3. Also apples, Ben Davis, Mammoth Black Twig, Arkansas Black, all leading varieties; whole root only; trees 10c each. On orders of 100 I will pay freight.

W. H. LAWS, Lavaca, Seb. Co., Ark.

Italian Queens Cheap.

My queens are as good as the best. Untested, 65c each; 3 for $1.75; 6 for $3.25. Tested, $1 25. Select tested, yellow to the tips, breeders, $1.50. Virgins, 25c. Safe arrival guaranteed.

G. E. DAWSON, CARLISLE, ARK.

Queens Yellow to the tip • • •

Mated with

• • • Drones Yellow all over.

Queen mothers from an entirely different strain from the drones, hence a direct cross. None but selected drones allowed to fly from the most desirable colonies. I am 4 or 5 miles from any other bees, therefore I can practically control the mating of my queens. Nine years as a queen specialist, always taking care to secure direct crosses, has convinced me that the golden Italians have no superiors. Queens sent by return mail if requested. Safe arrival guaranteed, and every queen warranted in every respect. Price 75c each; $8.00 per doz.

James Wood, North Prescott, Mass.

☞In responding to this advertisement mention GLEANINGS.

Golden Untested 65 cts. each; 6 for $3 50; 12 for $6.50. Tested, **Queens** $1 00 each. Fine prolific breeding queens, $2.50 to $4 00. To parties who have not tried my strain of Italians I will send one golden Italian queen for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my ***Golden Italians.*** They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. ***Sections, $2. per M.*** Dovetailed hives way down.

CHAS. D. DUVALL, Spencerville, Md.

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds

W. Atlee Burpee & Co., Philadelphia, Pa.

Sample Copy Free!

Please Cut Out

This whole Advt. Sign, and Mail.

☞Please send me the American Bee Journal each week for Three Months. At the end of that time I will remit $1.00 for 1 year's subscription, or 25c. in case I decide to discontinue.

To the Publishers of **American Bee Journal,**

56 Fifth Avenue, CHICAGO, ILL.

*Name*______________________________

*P. O.*______________________________

*State*______________________________

32 Pages, Weekly!

MONEY RETURNED to all buying **PORTER BEE ESCAPES** not satisfied after testing them. Prominent bee-keepers everywhere use and highly recommend them as **the best.** No others received a World's Fair award. Testimonials, etc., free. Prices: Each, postpaid with directions, 20 cts.; per doz., $2.25. Order from your dealer, or the mnfrs., **R. & E. C. PORTER, LEWISTOWN, ILL.**

13 Carloads of Supplies.

This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially **FOR THE WEST.**

Joseph Nysewander, Des Moines, Ia.

GLEANINGS IN BEE CULTURE

A JOURNAL · DEVOTED · TO BEES · AND HONEY · AND HOME · INTERESTS ·

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A·I·ROOT·
$1.00 PER YEAR MEDINA OHIO

Vol. XXII. AUG. 15, 1894. No. 16.

STRAY STRAWS
FROM DR. C. C. MILLER.

I'M NOT SO SURE about my percolated syrup remaining free from granulation.

HASTY THINKS a tax of 5 cents a ton on honey would bring down the figures of some of the big yields.

I'M SORRY H. Lathrop has to break his back for want of a seat when timber looks so plentiful on p. 609.

RUB THE JUICE of an ox-eye daisy on your hands, and bees will not sting them.—*Deutsche Imker.* [Don't believe it would *always* work. ED.]

JENNIE ATCHLEY, when she gets her bees 10 miles out at sea, can perhaps settle some of the questions on which we're all at sea.—[We see, C. C.—ED.]

EDITOR YORK has a German setting type for him, so he has adopted the German plan of mixing funny-graphs among his advertisements. Good idea.

EXPERIMENTER TAYLOR found spring packing an actual disadvantage; but Hutchinson thinks it was because the spring was so unusually warm.—*Review.*

LIGHTNING struck the bee-house of H. W. Brice (*B. B. J.*), and "out of 12 queen-cells which were going on nicely till the storm, 8 of the embryo queens were killed outright."

A CORRESPONDENT of *B. B. J.* says that, as sitting hens turn their eggs over, so the workers from time to time turn the eggs in the cells; also that the newly hatched larva is not fed till 24 or 36 hours old.

DRONE COMB, aside from objections on p. 620, is condemned for sections because it doesn't look as nice as worker. [But do you think bees will draw out, fill, and cap over drone foundation quicker than worker, even if the objections mentioned do hold true?—ED.]

C. W. DAYTON thinks bees leave a super in a regular stampede, and says, "I have seen them go through a single-exit Porter escape four abreast and two deep, or at the rate of 500 per minute."—*Review.*

JENNIE ATCHLEY, in *A. B. J.*, protests vigorously against giving up the use of the word "friend" among bee-keepers. Your head's level, friend Jennie. [Her article we publish in another column.—ED.]

THE EDITOR of the *British B. J.* doesn't take kindly to the latest improvements in the Bingham smoker. He calls it an uncanny-looking affair with the bellows "wrong end up." [He isn't used to it that way, perhaps.—ED.]

ALLEN PRINGLE objects to a high Chinese tariff wall. Hasn't he heard that's what makes this country prosperous? We'll get one around the State, and then we'll all be rich. If we had one around the county, we'd be millionaires.

A CORRESPONDENT of *Deutsche Imker* uses one of the rooms of his dwelling as a bee-room, darkening all windows but one, through which the bees fly. While he makes it work for a number of colonies, he frankly names objections.

HUTCHINSON says, where the flow is short and abundant there is less need of separators than where it is slight and long-drawn-out, or subject to frequent interruptions. Most likely. I didn't need any separators this year—nor sections either.

THE WELLS PLAN, having in the same hive two queens with a queen-excluding perforated wooden division between them, has created quite an interest for the past two years in England, and now they are disputing whether the occupants of such a hive shall be called one or two colonies.

HASTY TELLS in *Review* how he solders leaky wash-boilers with propolis. "In applying the stuff, heat the bottom first, then rub all round and over the leaky territory with a lump of the propolis. Put a generous piece of clean tin over the place so the clothes can not get soiled." Leaky wash-dishes, etc., likewise.

If I were to be asked what is the best single point in a good queen-bee, the answer would be, "A large, well-developed thorax." The muscles moving the wings are all located in the chest; and the larger the chest, the larger these muscles and the stronger the wing-power of every worker-bee reared from such queens. — *Dr. Tinker, in A. B. J.*

At the show of the Royal Agricultural Society in England, the cost of hives that took prizes for "Best and most complete frame-hive for general use" was $5.25, $6.00, and $4.63. Those taking prizes for "Most complete and inexpensive frame-hive for cottagers' use" were priced $2.13 and $2.63. The Cowan Rapid extractor took first prize.

Doolittle gives in *Review* his reasons for concluding that 1000 square inches of comb is about right for the brood-nest. I'd like to get him and Dadant shut up together for a day. [Doolittle's estimate of 1000 inches accords almost exactly with the number in the eight-frame Langstroth hive, and yet he has a different frame.—Ed.]

Some German societies have a central depot where the honey of members is sold at a fixed price agreed upon in July. Each member can sell his honey privately at any price he pleases. The label of the producer is a guarantee of purity, and adulteration subjects a member to expulsion in some societies, to prosecution in others.

Those 50 new hives that I said I was going to try, V-edged Hoffman frame and all, were ready and waiting in good time. They're waiting yet. Only one is filled with bees, and that not satisfactorily. I thought I could have them filled, no matter what the season was. Not as smart as I thought I was. Not half. [Too bad you had an entire failure of the honey crop. We wanted to show you that the V edge is still "in it."—Ed.]

What a question that is on page 608! No, sir-ree. If there's any one thing I can't stand, it's having my neck choked, so I never tuck veil between neck and shirt-band. I wear my veil same as Emma, only she pins hers down when she puts it on, and I generally let mine hang loose till a bee gets in and stings me. But I sweat the black off the veil on to my shirt in a little while without the white border. [We were not sure from that Straw whether you practiced the neck-choking way or not; hence that question.—Ed.]

The Standard dictionary, just published, is preëminently the bee-keeper's dictionary—the only one, I think, that has made any effort at completeness and correctness in bee-keepers' terms. I suspect much credit for this is due Gleanings' editor. Aside from its special value to bee-keepers, it is a grand work, containing a third more words and terms than even the expensive six-volume Century dictionary. [All the credit we can claim is, that we put the dictionary people on track of Dr. Miller, requesting them to put apicultural terms in his hands. They did so; and although we have not seen the new dictionary, we expect that the results will be highly satisfactory.—Ed.]

GENERAL CORRESPONDENCE

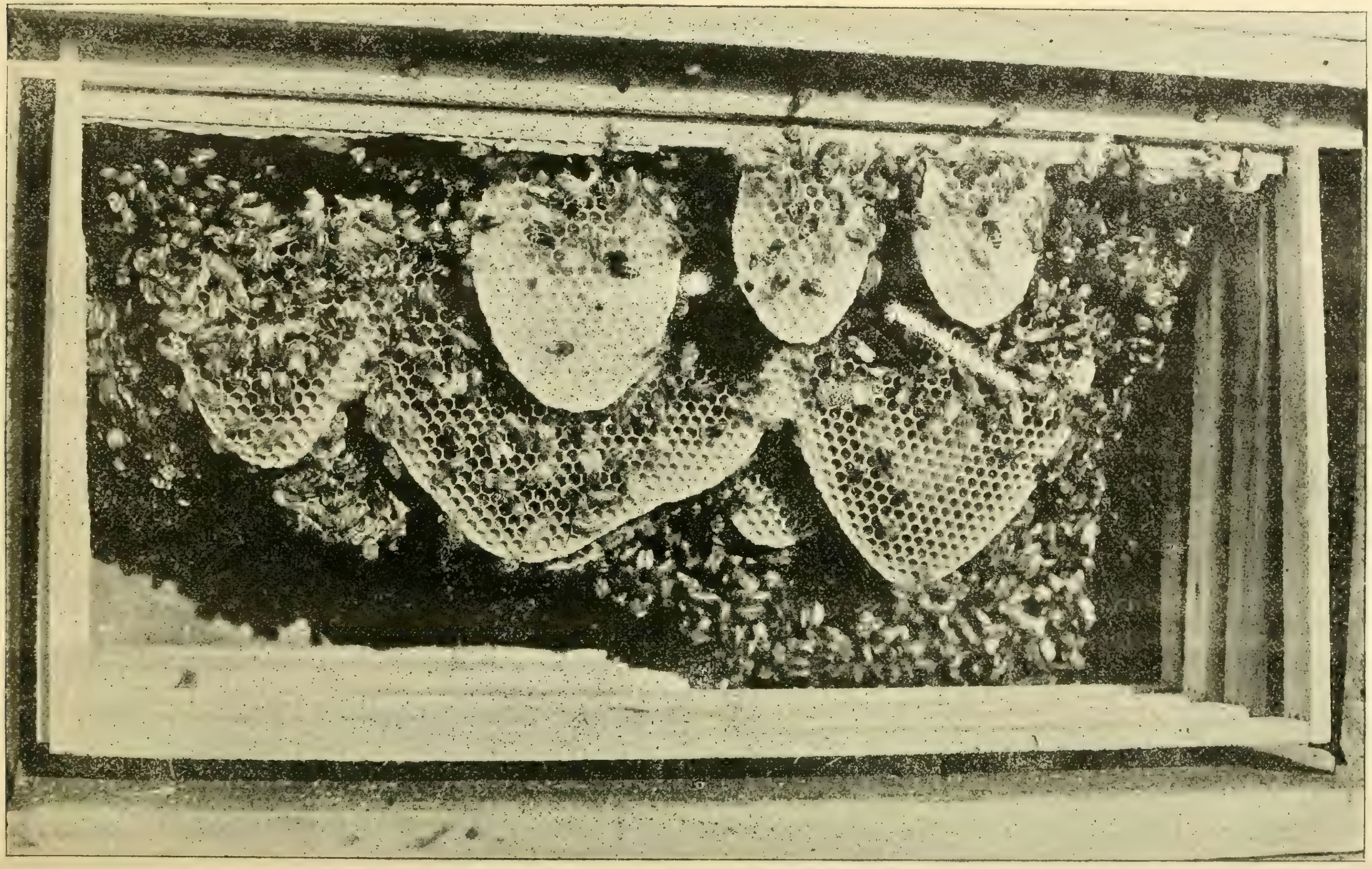
WHY SWARMS BUILD IMPERFECT OR DRONE COMB IN THE BROOD-NEST.

THE IMPORTANCE OF YOUNG QUEENS, AND PROPER SIZE OF BROOD-NEST FOR THE SECURING OF ALL WORKER COMB.

By W. Z. Hutchinson.

Ten years ago I was led to believe that bees would store more surplus comb honey if, under certain conditions, swarms were allowed to build their own combs in the brood-nest. Subsequent experiments proved the correctness of the theory. It might be well to remark, parenthetically, that Mr. R. L. Taylor conducted a series of experiments in this line during a period of three weeks in the summer of 1893, in which the swarms furnished with combs or foundation came out ahead of those building their own combs; but there is another point in connection with the matter to which there has not been attached sufficient importance; viz., that, while the swarms building their own combs were outstripped in the beginning of the race, they soon began to gain upon their opponents, and continued to do so at an increasing speed to the end of the allotted time. I have always regretted that the test was not for a longer time—say twice three weeks, covering the whole of white clover and basswood bloom. I *know* that it is more profitable for me to hive swarms on starters only, when working for comb honey. Briefly stated, I look at the matter something as follows:

If given combs in the brood-nest, the first step of the bees is to fill them with honey. Having done this, there is a halt, a hesitancy in commencing and continuing work in the supers. The disposition of bees to do thus and so, to begin work or not in a new compartment, is a factor to which not enough attention has been paid. It is not always the most populous colony that stores the most surplus. I have seen a colony of less than average strength pile up super after super of honey, while another much stronger would do but little in the supers because the conditions were such that the bees "didn't feel like it;" perhaps they had in some way been "snubbed," and were "sulky" in consequence. I have heard it said that there is nothing in this; that, with honey in the



fields, it would be brought in and stored somewhere—if there was no room in the body of the hive, it would go into the sections. I don't agree. Let me illustrate: I have sometimes been so fortunate as to have, in the spring, enough drawn, or partly drawn, combs in sections to enable me to furnish a part of my colonies with a full case each of such sections. Colonies so furnished begin storing honey in the sections at the *very beginning* of the harvest, and often have the first case filled with honey, and work begun in a second case filled with foundation, when colonies simply furnished with foundation in the first case are just beginning work in said case. Those clean, dry, empty combs just above the brood-nest are such a temptation to the bees that they just pitch in and fill them. This puts the bees in a *mood* to store their honey in the supers, and they keep on doing so. The colony thus early led to turn its energy superward is more likely to lay up a goodly store of surplus. But this is a digression.

If no combs are given in the brood-nest, and the supers of sections in all stages of completion are transferred from the old hive to that of the new swarm, the bees are compelled to begin storing honey in the supers; and where they begin, there will they continue.

Another advantage, although I consider it the least, of allowing the bees to build their own combs, is in saving the cost of foundation.

Of the many bee-keepers who have tried this system, I believe all, or nearly all, have secured more surplus honey as the result; the only objection to the plan being the exacting conditions necessary to secure the filling of the frames with perfect worker-comb. Some have even gone so far as to advocate the following of this system though it involved the sorting of the combs in the fall, and the rendering into wax of the imperfect ones. This is not necessary. For the past ten years the majority of my swarms have built their own combs, nearly all of the combs being perfect worker-combs, and but few words are needed to tell exactly how such combs may always be secured. *Have young, prolific queens, and contract the brood-nest.* That is all there is of it. So long as the queen keeps pace with the comb-builders, all goes well; but let them get the start of her, so that comb is being built to any great extent for the storing of honey, and at once a change is made to "store" (or drone) comb. If the brood-nest is too large, the first-laid eggs are likely to develop into bees that will emerge from their cells ere the brood-nest is completely filled with comb; and it is when the queen deserts the comb-builders to restock with eggs the centrally located cells that are being vacated, that drone-comb is being built. I don't remember having seen a drone-comb among the first built by a newly hived swarm; it is the outer combs, built when the bees have outstripped the queen, or while she is refilling with eggs the ones first built, that contain the drone-comb. The remedies are, a queen so prolific that she can keep pace with the comb-builders, and contracting the brood-nest to such an extent that it will be filled with comb before the bees from the first-laid eggs emerge from the cells.

Bulged or crooked combs are also the result of a large brood-nest. The bees begin comb-building in the central frames. As a comb is completed, it is sometimes slightly bulged into the space between it and the adjoining outside frame—particularly so if the second frame contains no comb, or a comb that is not so far advanced as the one in the first frame. This causes the comb in the second frame to be bulged into the next outside frame, and so on with an increasing bulge as each succeeding frame is reached. When the last frame is reached, its space may be so encroached upon that perhaps no comb, or only a thin, misshapen one, may be built inside it. Proper and exact spacing will do much to overcome this state of affairs; but with a medium or small swarm in a large brood-nest, something of this kind may be looked for. In the illustration given, showing the side of a hive removed, a swarm a little below the average in size had been hived three days upon eight L. frames, the bees also having access to and working in the supers. It will be seen that the central combs are half or two-thirds completed, while in the two outer frames work has only been commenced. Had "dummies" been put in at the sides, reducing the number of frames to five, all of the combs would have been commenced at the same time, advanced in growth at about the same rate, been finished nearly all alike, and there would have been no *opportunity* for bulging. A comb is never bulged when it is built between two others, the growth of which keeps pace with its own.

When I began the practice of hiving swarms upon starters in a contracted brood-nest, I was using the eight-frame Langstroth hive, putting "dummies" at the sides, and contracting to five frames; and I secured such straight worker-combs that those built upon foundation might almost look upon them with envy; but with the Heddon hive, unless the swarm is unusually large, such perfect results, especially in the one or two outer frames, are not secured. The trouble is, that the brood-nest is compressed the wrong way. It is not the wrong way so far as work in the supers is concerned; it is superior in that respect, but it furnishes too large a surface at the top of the brood-nest; that is, there are too many frames in which to begin work. Reduce their number to five, and all of the combs will grow at the same time, and be perfect, as has been explained.

Keep young queens, and contract the brood-nest when hiving swarms on starters only, and there will be neither drone nor crooked combs; if this can't be done, then use full sheets of foundation, as permanent success is most certainly coupled with straight, perfect, all-worker combs in the brood-nest.

Flint, Mich., July 31.

[On page 588 reference was made to the fact that W. Z. Hutchinson was making some beautiful photographs illustrating some of the different phases of apiculture. One of these pictures was especially fine. We wrote to friend H., requesting the privilege, if he had not made arrangement to dispose of it elsewhere, of submitting it to our readers in half-tone; and in case he consented, to write an article on why swarms build imperfect or drone combs in the brood-nest. We thought he had, perhaps, planned to have it appear in his own journal; but as he had not, he kindly consented to let us use the photograph, and sent the article above, which covers just what we had in mind.

We regret that the half-tone does not show all the delicate details of the original photograph; but it does fairly well. The accompanying article, we are sure, will be read with interest, as it boils down in a nutshell the very information that so many have been seeking of late—how to get *worker* comb without foundation. We presume, however, Bro. Hutchinson would use foundation starters, as the frames before appear to have a narrow strip fastened to the comb-guides.

Although we are foundation-makers, we shall gladly welcome any plan that will save the bee-keeper expense, for he needs all the help he can get. The prices of honey seem to be tending downward, and, of course, expenses, where possible, *must* be cut down.—ED.]

THE PHENOL CURE FOR FOUL BROOD.

FULL PARTICULARS HOW TO PROCEED, ETC.

By H. Stephenson.

Friend Root:—I was glad to see, in your issue for Jan. 1st, that my experience with carbolic acid as a cure for foul brood was so fully indorsed. I feel sure that, if you give it a proper trial, should you be unfortunate enough again to encounter it, you will never try any thing else.

Cheshire's mode of procedure fully carried out leaves nothing to be desired; but no half measures will succeed; and before you condemn his methods you ought, in all fairness, to conform to his suggestions. So far as I can gather, the solution you tried was only one-tenth of the strength of that he prescribes. If you will reperuse his article you will discover that he employs two distinct solutions:

1. For disinfecting—Carbolic acid, 1; water, 50.

2. For remedial treatment.—Carbolic acid, 1; syrup, 500.

For the benefit of those who may not have his book I will give a summary of what is, in my opinion, the most reliable system to adopt.

Alas! I have indeed been "through the mill," and can speak feelingly; but now I am glad to say I am master of the position. Cheshire has established two most important points:

1. That the ovaries of the queen are frequently infected—so much so that every egg she lays will contain the disease in embryo.

2. That the spore of this bacillus will not develop in acid solutions.

Acting on these two axioms, the diseased colony must be requeened; and any syrup fed to them *must* have a distinctly acid reaction. The acidulation of syrup for bees, we all well know, is important as a preventive of recrystallization in the cell; but the fact that bacillus alvei requires an alkaline pabulum for its development makes the point doubly important.

I must here add a special note of caution, before proceeding further, on the great danger of spreading the disease; and this being the case, our mode of procedure must be most systematically thought out before we undertake to fight it. I will here give a list of our requirements.

Besides the necessary tools and smoker, we must be prepared with—

Solutions 1 and 2; a small ball syringe; a bowl of water for washing the hands; a complete hive; one division-board; 4 strips of gauze for closing entrances; one drone-cage and a healthy queen, together with a frame of unsealed brood on which she is to be caged. The frame selected should contain little or no honey but plenty of empty cells. The adherent bees, of course, are to be swept off in front of their hive.

While we have the frame in hand, a few ounces of solution No. 2 are to be carefully injected into the cells adjoining the brood. The frame with caged queen is now to be placed in the new hive, the division-board drawn up to it, and the quilt adjusted to prevent chilling. The entrance having been closed with one of our strips of gauze, the hive may be placed in a convenient position for receiving the bees of the colony to be operated on.

We next proceed to find and destroy the queen in the diseased colony. This having been done, the hive is to be undisturbed till bees have ceased flying in the evening, except that we should now take the opportunity of removing all hopelessly bad combs, leaving one less than the bees can well cover. The removed combs must be strongly sprayed in solution No. 1, and put away for rendering. If they contain honey it can be saved by melting the comb in an inner vessel surrounded by boiling water or steam. The wax can be skimmed off on cooling; and the residual honey, after a careful scalding, can be fed back with perfect impunity.

We will now give all our tools a good spraying, and have a general wash-up, using water to which a little of solution No. 1 has been added.

We now defer the rest of the operation till such time in the evening as bees shall have ceased flying. If the infected colony can be isolated, so much the better; otherwise we must be content to leave them in their original position after they have been rehived. In this case, however, the occupied ground must be carefully watered with carbolic solution, or carbolate of lime must be scattered around.

Evening having arrived, we will commence operations by closing the entrance of the adjacent hive on either side, with strips of gauze, to prevent risks of entry by our patients while the process of transferring is proceeding. We now close the entrance of the infected colony with our remaining strip of gauze, and remove it. Next, the ground it occupied must be disinfected, after which the new hive must be placed there; and a board leading up to the entrance having been arranged for the convenience of the bees, the combs of the infected colony are to be shaken over it, the division-board and quilt having been removed, so that the bees may be enabled to discover their new queen. If there is any difficulty in getting them to enter the new hive, this is easily removed by placing the comb, on which the queen is caged, outside, and leaning it against the entrance, when the bees will quickly cluster on it. While this is going on, half a pint or so of the carbolized syrup may be injected into the shaken combs of the diseased colony, after which the frame containing the caged queen (on which many of the bees will now have collected) is to be placed in the hive, and the other combs are to be ranged on either side of it.

They are now to be contracted into a suitable space by employing the division-board; the quilt is replaced, the hive closed, and its entrance also, the piece of gauze being again replaced. The bees must be closely confined for 48 hours, at the end of which time their new queen will probably be acceptable; when so, she is to be released. As soon as the queen commences to lay, the developing brood must be carefully watched, and each day a few ounces of carbolized syrup should be injected into the adjacent cells. The sealed brood will also need scrutiny, and any unhealthy patches must be sprayed with solution No. 1, whenever discoved. In a month's time all should be safe.

The old hive is to be carefully fumigated with burning sulphur, and next morning it must be painted externally and internally with solution No. 1. This should be done twice or thrice, after which it may be put away for future use. As this neighborhood has been heavily visited with foul brood. I find it advisable to medicate spring food, as, before the honey crop opens, scavenging among diseased colonies, which are too often carelessly exposed, is apt to spread the evil once more.

The disinfectant I use with my spring feed is that recommended by my old friend Muth, of Cincinnati: 16 grains salicylic acid and 16 grains soda borax, to each quart of honey or syrup.

I fear my article has become somewhat lengthy; but unless minutiæ are attended to, perfect immunity can not be attained.

Inneshannon, Ireland.

[We believe Mr. Frank R. Cheshire to be an eminent scientist, and one who has done much —*very much*—to advance real science in bee culture; but his conclusions in regard to foul brood, or *Bacillus alvei*, strangely disagree with our experience in one or two particulars. Out of 60 or 70 colonies which we treated for foul brood, every one was allowed to have its own queen after treatment—that is, after putting on frames of foundation in clean hives; and in none of these cases did the disease develop again. Indeed, we have taken queens from diseased colonies and put them into healthy ones, to test this very thing; but foul brood did not follow in their wake. If the ovary of the queen contains the diseased germs, as stated by Cheshire, they are not transmitted, or were not in our cases, to the brood.

Now with regard to the phenol, or carbolic acid. As we have related before, Prof. Sargent, at our suggestion, prepared some pure "cultures"—that is, test-tubes containing beef gelatine, that had been sterilized of course. Into these tubes he introduced the virus of foul brood. Later examination with a microscope showed that the bacilli grew rapidly; and a twelfth-inch objective showed exactly the same microbes that are illustrated in Mr. Cheshire's work. Into these tubes containing the germs of foul brood he introduced phenol solutions such as are used for feeding bees, of the strength recommended by Cheshire; but it did not kill the germs. Other tubes of gelatine could be inoculated from the tubes treated with phenol, showing that carbolic acid of the strength proposed by Cheshire, at least in our own case, failed to kill the germs. This was exactly in accord with our own experience in spraying some dozen or so colonies that we had been experimenting on, but without any satisfactory results, the disease reappearing after repeated sprayings. You suggest, that perhaps the solution used by us was not strong enough. In some cases we made it so strong that it actually killed the *bees themselves;* but did it kill off the foul brood? Not a bit. The most we could ever say for the phenol, or carbolic acid, was, that it *seemed* to hold the disease in check; but further than this we could discover no effect. For these reasons we have discouraged the use of phenol, or carbolic acid, as a waste of time, and at the same time it is a great risk.

As it is possible that we may have erred in some of our experiments, and have not given the Cheshire treatment a fair trial, we are glad to place before our readers the article by Mr. Stephenson.—Ed.]

STARVATION A CAUSE OF BEE-PARALYSIS.

Mr. Dayton writes me that he thinks starvation causes the "new bee-disease." Brodbeck is getting honey again from honey-dew. He sends me leaves on which I find honey-dew and aphides, or plant-lice. This dry year in California is very favorable to both scale and plant lice.

A. J. Cook.

Claremont, Cal., July 23.

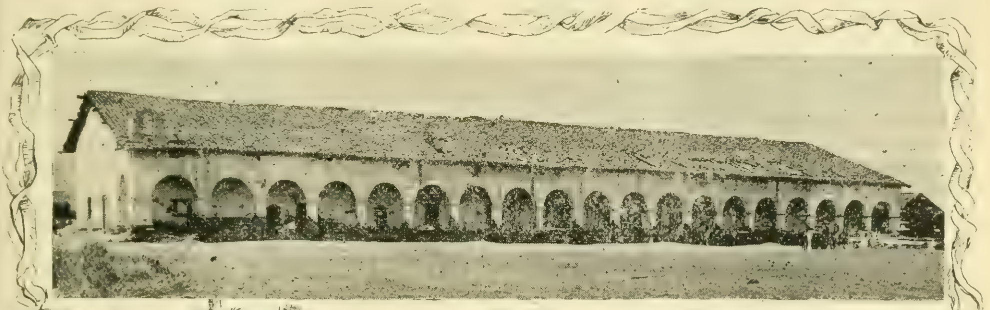
RAMBLE 114.

THE OLD SPANISH MISSIONS, ETC.

By Rambler.

From our pleasant camp on the "Lucky" Baldwin ranch we moved on as soon as we had disposed of our morning meal, washed our tin dishes, etc. No fragile crockery is used in this tour. The lightest and most substantial culinary utensils are the best. We found that fifteen minutes was sufficient to pack our whole outfit into the wagon, and we were ready to take any direction. The direction this time was toward the San Gabriel Mission, with its outlying borders flanked by a few Mexican adobes.

These old missions have a special interest to the traveler, as they were the pioneer points of a new era for all of this sunset country. From 1690 to 1820 these missions were industriously planted. The Spanish "Padres" came here to subdue the soil and the Indian. The olive and the vine were planted in the valleys, and thousands of cattle roamed the hills The intractable Indian was approached with food in one hand and the cross in the other. The influence thus brought to bear upon soil and man was salutary. The Indian soon learned that lifting hair was not the chief end of his existence. is a fact, however, that, after several hundred years' effort, the ordinary "greaser" is the product; and it is questionable whether the improvement is much better than the original native. The settlement of Spaniards, and the extension of their power, has had the far greater and more lasting influence. The missions have in a great measure served their day, and are now falling to ruins; and but for the hands put forth by those who love the quaint and ancient landmarks their adobe walls would soon crumble to dust, and the world would know them no more. It is not an unusual sight to see some old-mission bell hanging to the limb of a decaying tree, tongueless and mute, while the spot upon which stood the mission is marked only by an unsightly weed-covered mound.



OLD MISSION. SAN FERNANDO CALIFORNIA

FERNANDO PASS

We reflect, with a tinge of sadness in our minds, that this same mute bell, in times past, called the worshipers from over the hills, and was a potent factor in their daily lives. The old burying-ground near by, with its wooden crosses, marks the place where the body has been tolled to its final resting-place, and no doubt the now mute old bell has lent its musical tones to festal and marriage scenes.

The more pretentious missions have several bells. They are tied with rawhide ropes to the beam above, and a hammer strikes the bell; thus the chimes of the bells are sweet to listen to in the evening hour. With the artist's aid I present a photo of one of these decaying landmarks known as the San Fernando Mission, in San Fernando Valley. Only one small room is now used for religious purposes, while the other rooms are used for the junk from a large ranch.

From San Gabriel we made a rapid drive to Los Angeles. We, and especially our team, fresh from the free and untrammeled air of the country, entered Los Angeles, and tried, as well as we could with our nondescript outfit, to appear somewhat "cityfied," but it was out of the question; for Reina bolted as though in fear the tall buildings would fall upon her, and in various ways our ponies betrayed their country breeding and Indian blood. The untrammeled Indian, with his squaw and papoose, in like manner, when he first visits a city, eschews the civilized sidewalk, and promenades in the center of the street, the observed of all observers; and from the number of glances toward us we were too much observed. After laying in a stock of provisions and photographic supplies we rattled the Los Angeles dust from our wagon-wheels and made for the Cahuenga Pass, and passed through it and camped over Sunday on the banks of the Los Angeles River, in the shade of the willows. From our points of view there was but a small amount of bee-forage in this portion of Los Angeles Co., except, perhaps, upon the river bottom. In order to see the best honey resources of the county, and find the bee-keepers, it would have been better to follow out on the Pasadena (or east) side of the valley; but we got started this way from the city, and followed it. Our continued journey across the San Fernando Valley revealed abundant cactus growth, and not a great amount of sage or other honey-producing flora; and such flora as we saw was withered by dryness and obscured by dust.

At San Fernando we found the mission previously spoken of. A little beyond it we came to the San Fernando Pass; and, learning from other travelers of the arduous climb before us, we camped, preferring to make the ascent with a fresh team in the morning. Mr. Wilder went out for a little hunt, and returned with a large white owl—a subject for taxidermy—and reported the finding of an apiary just over the hill. I visited it in the morning, and found a very neatly arranged collection of bee-hives and honey-houses; and, as a sort of remembrance of the place, I shot a rabbit in the suburbs.

In the morning we addressed ourselves to the task of getting through the pass. In all of this California country, in crossing from one valley to another we have to enter the mouth of a canyon, and toil up a winding grade, more or less steep, until we emerge from the tail end of the canyon. We then pass to the tail end of another canyon, and have the same sinuous grade down, and emerge into the valley from the mouth of the canyon. This was a most arduous pass. and was made passable only by making a cut some sixty feet deep, and barely wide enough for the wagon to go through. Going down the other side was quite an arduous undertaking. We have no brake on our coach, so Mr. Wilder sawed on the reins, and hallooed "Whoa!" while the Rambler tied a rope to the rear axle, and held on; and thus we safely descended. My strenuous labors in the rear relieved the pressure on the horses immensely, and saved us from a catastrophe, perhaps. In thus going down the grade, however, I felt some like the Irishman who was clinging to a pole, with another Irishman hanging to his feet. When the strain became great, upper Irishman shouted to the one grasping his feet, "Arrah there, Pat! hang to yer hoult below till I spather me hands above." I did not "spather" my hands, which accounts for our safe descent.

The mouth of this canyon opens into the Newhall country. This is quite a center of the bee-keeping industry, and there are many apiaries located in the canyons that open into the valley. We passed one on quite a steep down grade, and learned afterward that it was one of Mr. Wilkin's apiaries. Mr. Wilkin also has another a few miles from this. We pushed along through Newhall into the Saugus country. The readers of Gleanings have had more or less to do with dry and wet towns. Some rejoice when they hear that a town has gone dry; others rejoice over the wet aspect. Those who like the dry towns should move to Saugus. It is as dry as a bone this year. The dust rolls up beautifully; even the barbed-wire fences had a dried, harsh appearance. Ordinarily this is a great stock country; but there was not a "cattle on a hill," and not a blade of grass to keep a grasshopper alive. I fell to speculating, that, if this was the country in which Mr. Hewes cultivated the honey-bee, there was good reason for his acrimonious remarks in a late number of Gleanings. After passing the Saugus water-tank, which is the chief building (appropriate for a dry country), I began to feel a touch of the blues—sort of imaginary sympathy, I suppose, for the bee-keepers in that vicinity who are feeding bees or losing them by starvation; for some, I regret to say, are following the latter alternative. The touch of blues was, however, dispelled when we struck the head waters of the Santa Clara River, and the center of the Newhall ranch. Here was a fertile valley, with hundreds of horses and cattle grazing on the succulent herbage. We camped on the banks of the winding river; and, as the saying is, we had a "fly time" here. Pharaoh might have had a worse time; but this being a stock-ranch, the flies were numerous enough to be an inconvenience, especially in the cool of the evening, when they persisted in taking possession of our tent.

The main episode, as we continued our journey, was the mistake of getting upon the wrong road, and another mistake in not continuing upon the wrong road. The peculiarity upon roads in this country, where large stock ranches are owned, is the frequency of gates upon the main roads. The Newhall ranch contains 49,000 acres. By placing a gate across the road it holds the stock on several thousand acres without the expense of fencing the road. The supervisors of a county are very obliging to the big ranchers in this respect. and thus allow the gates. One of these gates led us to keep on in an open road, and we were headed direct into a canyon nearly opposite the direction in which we thought we ought to go. When about to cross a little stream we heard a festive voice rising in musical tones, and, searching a few rods further down among the trees, we found some young men camping, and from them learned that we were headed into the Castail Canyon. We turned around and retraced the lost mile and took the road with a gate across it. Now, the mistake we made in not following up our mistake, was that, just about a mile or so up the Castail Canyon, we should have found Mr. Mercer's apiary, and at that time he was at work in it, as we afterward learned; and, not far from the Mercer apiary, Mr. Hewes holds forth. Had we called upon our friends, no doubt we should have enjoyed a sort of picnic. It is, however, too late for regrets, and we will try to do better next time.

After passing the aforesaid gate we rode at least ten miles and saw no signs of habitation, with the exception of a couple of bee-ranches off to the right in the foot-hills. One of these, known as the Black apiary, on account of the dark and weather-beaten appearance of the hives, is owned by Mr. Moffat, of Los Angeles. It is in the midst of the best black-sage country in Los Angeles or Ventura Counties, and has yielded as much as 400 lbs. to the colony. Mr. Hewes, being located not far from it, should exercise a little of his surplus energy, and raise his average a little. From later information, I learn that Mr. Moffat always leaves an abundance of stores in the hives for wintering, and requeens his colonies often, which is the proper idea entertained by the RAMBLER.

POMONA COLLEGE.

ALL ABOUT IT, ETC.

By Prof. A. J. Cook.

Dear Mr. Editor:—I have been requested, and even urged by many, to send to you, for publication, answers to the following questions: What kind of an institution is Pomona College? Would you advise any one to make California a home?

Pomona College is situated in the San Gabriel Valley. The mountains compass it about, and are very high and close on the north. To the south, for forty miles, is a valley of wondrous fertility and beauty. Thus we look down on hundreds of acres of orchards, bearing the fruits of every zone, whose rich verdure gladdens the eye alike in winter and summer. The climate is delicious. I doubt whether Italy can boast of any thing more delightful. What is equally important, it is as famed for its salubrity as for its beauty. Health-seekers come here from all regions of the world. Claremont, the seat of the college, is situated on the Santa Fe R. R., midway between Los Angeles and San Bernardino, the two largest cities of Southern California, and is 35 miles from the former place. The soil is granite gravel, and so it is never muddy about the college. I have ridden on my wheel every day since I came here, Dec. 29, and have never had to clean mud from my bicycle, though we have had some very hard rains. Claremont is yet new, but is rapidly improving, and will soon be one of the most lovely places in Southern California.

Pomona, Chino, and Ontario, are all close by, almost in sight. The people in the whole San Gabriel Valley, from Los Angeles to Redlands and Riverside, are exceptionally cultured, intelligent, and refined. It is common to find graduates from all the eastern colleges, cultivating their own orange, lemon, or olive groves. Nearly all are church-going, Christian men and women. Two of the largest cities in the valley, and all the small towns, entirely prohibit the saloon. There is probably no country in the world where the fruit and bee-keeping industries can be more successfully and profitably prosecuted than here. Thus I have said enough to show that Pomona College is most fortunate in its location. Scenic beauty and grandeur; lovely, healthful surroundings; refined Christian people, are a trio of circumstances in which any college would thrive with vigor.

Pomona College is only six years old, and has just graduated its first class of eleven—a class of whom all here are justly proud. There are fourteen in the corps of instruction; and there have been 196 students in attendance during the past year. There are two fine buildings, which were well shown in a recent number of GLEANINGS. Notwithstanding the great business depression, $50,000 has been raised the past season, which secured a gift of another $50,000, thus giving us an endowment of $100,000. Two professorships are endowed, and, aside from the $50,000, enough has been raised the past season to pay all current expenses, and, provisionally, the same for five years to come. Pomona College has a host of friends in the State, and is confessedly the best college in Southern California, as she is the largest. She deserves it all, for she does exceptionally good work, and is working successfully to develop grand Christian character. In short, Pomona College is a Christian college, like Oberlin, Amherst, Williams, etc., with an able faculty of earnest Christians, and with a grand lot of Christian students, loyal to the core. Thus the spirit and work of the college attracts all who become acquainted with its influence and management. It is a safe place to send young ladies and gentlemen. The studious and right-minded will find all congenial; the unchristian and wayward will likely be won by the spirit of the place, and will fall in to the general trend of industry and right living. Our country, and especially California, needs just such grand men and women—bright, cultured, Christian, as Pomona is sending out.

And why am I here? I love and believe in just such colleges. Besides, the President is a broad-gauged man, and saw the importance of the bee-keeping industry, and the economic relation of entomology to fruit culture, and so wished a zoologist alive to these departments of study, and I was offered the position. I have already had a class of seventeen in economic entomology and apiculture.

Would I recommend any one to come here? If such are well and happily located in the East, no. If impecunious, emphatically no, unless some position is assured. If a man has a few thousand dollars, and wishes a more genial and delightful climate, and especially if impaired in health, and finds the winters severe and trying, then yes; and if he, to all this, is fond of orcharding or bee-keeping, then decidedly yes. If to these last he has a family to educate, then surely he could make no mistake in locating right here at Claremont A small orchard from three to ten acres, and an apiary of from 50 to 150 colonies, which could be moved to catch the best, would be profitable and delightful. In this land, where irrigation is practiced, uncertainty is almost banished in orcharding, and is no more common in apiculture than in other places.

Claremont, Cal., July 12.

[Even if the above does savor somewhat of an advertisement for Pomona College, it is advertising of the right sort, and we are glad to encourage institutions of this kind.—Ed.]

THE ROOT-HATCH DISCUSSION.

DO QUEENS LAY IN TWO STORIES, OR DO THEY PREFER ONLY ONE?

By Dr. C. C. Miller.

Seldom am I so deeply interested in reading any thing as I was in reading pages 572 and 573 of Gleanings. In the first place, I am interested in the subject from a dollar-and-cent point of view; for, as Ernest says, "*if* there is a difference . . . it is important to know which is better." In the second place, the two sides are argued by men of ability, and, what is perhaps more important, by men of fairness. I believe it will be in the interest of our pursuit if the same two men fight it out to a finish. I don't mean for them to occupy two pages of every issue, but to give all the honest arguments they have, each one doing some experimenting in both directions, each one offering a new point as often as he gets one; and although the finish might not come in two years, it would be of value when it did come.

As one on the fence, not ready to take sides with either, I might be asked to keep out of the fight. But it will hardly be amiss for any one to mix in if he can do any thing toward settling any of the points at issue. I had fondly hoped that, by this time, I should have learned quite a little from my own experience of this summer as to the different results from the different-sized hives. But the terribly disastrous season put me all out in that respect. I think not more than five or six of my colonies made the least start toward working in sections, and only one of these filled a single section. So I can't tell what might have been done in a good season by any one of my perhaps 30 colonies which had more than eight combs, some of them sixteen.

Bro. Hatch makes a good point in saying that, in comparing 150 colonies in eight-frame hives with 120 in ten-frame hives—the same number of frames in each—the same force of bees will give a greater amount of work for the bee-keeper with the smaller hives. And yet, when Bro. Hatch comes to be less rugged and strong than now, he will admit quite an offset. Just so far as the swarms are concerned, he can hold his ground. It's just as much work to take care of a swarm from an eight-frame hive as from a ten-frame; and if bees were just as much inclined to swarm in one hive as the other, then there would be a fourth more swarms to care for with the small hives. But when you take into account the greater tendency to swarming in the small hives, I suspect it may be safe to say that the labor of swarming will be four or five times as much with the 150 small as with the 120 large. Even in that, however, there is an offset. If the old hive is to be lifted every time of swarming, I'd rather have more swarms and lighter hives. For a very strong person there might be little or no difference. But suppose the lifting of a ten-frame hive is the limit of my strength—that is, I can lift it, but that s all. In that case I'd rather lift three eight-frame hives than one ten-frame hive. And whether the hives are lifted at swarming time or not, the bee-keeper who runs an out-apiary must count on a good deal of lifting if he hauls his bees back and forth.

If I didn't believe C. A. Hatch to be a thoroughly reliable man I should doubt one of his statements; and I'm puzzled to know what peculiarity makes so much difference between his experience and mine. He says his queens will go into an upper story, but will not come down again into the lower story. In the first place, it seems to me I wouldn't give additional brood room above, but would give it below. For not only will my queens go back down to the combs that had brood in, but they'll go from an upper story down into a lower story that has no brood in it.

Just now it occurs to me that perhaps the reason for the difference is, he is talking about bees in ten-frame hives and I'm talking about eight-frame hives. Suppose a queen capable of keeping 11 frames filled is in an eight-frame hive. She will feel so crowded that she will go down; whereas, if she had two more frames above she would be content with that rather than go below.

Some years ago I had a lot of combs to be taken care of, and I put them in hives and set them under hives containing full colonies. They were left there till the honey harvest was on, and a number of them—I can't now tell how many—had brood in them. There, you see, was a case in which the queen went from the second story down to empty combs in the first story. I've had a good many cases since of queens working in two stories, but not always with empty combs below. Wait just a minute and I'll go and examine a colony that I know has been occupying more than one story.

. . . . . .

Well, I've been and examined No. 10, and I'll tell you what I found. First I'll tell you what shape it was in at my previous visit; for, for some reason, I put it down in my record-book. Here's the entry: "July 20, 7 br below, 4 above; only eg & sbr below." That means there were 7 frames of brood in the lower story and 4 frames of brood in the upper story, and that there was no unsealed brood in the lower story —only eggs and sealed brood. There being no unsealed brood below, the queen must have spent about five days upstairs on her last visit there.

To-day, July 25, I find, on looking through the upper story, four combs crammed with honey, and four of brood in all stages; but very few eggs. In the lower story, six frames of brood in all stages, and eggs abundant; but very little honey. It seems pretty clear, that, in this case, the queen goes up and down quite freely, doesn't it?

You two disputants disagree on one point—Ernest thinking that a colony having eight frames of brood in a ten-frame hive will have the same amount of brood in an eight-frame hive, while friend Hatch thinks it will have only six in the smaller hive. According to my experience (and on that point it is large), the truth lies between the two, but not midway, for it is nearly as friend Hatch says. Bees seem to prefer to have the two outside frames without brood, and one or both of them will be found largely filled with pollen. In a ten-frame hive you will often find eight frames filled with brood; and while you may find brood in each of the eight frames of an eight-frame hive, it would be a remarkable thing to find those eight frames filled.

I feel pretty safe in saying that bees will not put brood in either of the outside combs except under pressure. When I had ten-frame hives I never knew a case in which there were ten frames of brood, although it seems nothing unusual to have ten and even eleven and twelve when plenty of room is present. Occasionally some brood would be put in the ninth frame of a ten-frame hive; but I think I never knew it to be filled.

I am inclined to the opinion, Ernest, that in those hives at the basswood apiary, where you found a hive with brood in eight of the frames, if the same colony had had eleven frames you might have found brood in nine frames, and very likely each one of the nine frames filled. Some other points I will touch another time.

Marengo, Ill.

[As Dr. Miller has already sent in a second article, to be printed in our next issue, we will reserve our own reply till then; but for the present we may state that our experience, so far as brood is concerned in two stories, is different from Mr. Hatch's, and quite in line with Dr. Miller's.—ED.]

THE EIGHT VERSUS THE TEN FRAME HIVE.

THE EFFECT OF LOCALITY ON THE QUESTION.

By E. S. Alexander.

I am one of that contemptible class of small bee-keepers, keeping from twenty to forty colonies. I offer, as an argument in favor of ten-frame hives as against the eight-frame, for the South, the following:

My first hives were mostly eight-frame, using only a few ten-frame hives by way of experiment. The increased honey from the ten-frame hives was not represented by the ratio of 10 to 8, but nearer that of 84 to 24, or, at least, 56 to 24. My swarms from ten-frame hives are stronger, and commence storing surplus sooner. As I am keeping bees for money, rather than to demonstrate theories, this is sufficient reason for me to prefer the ten-frame hive. I am now making only the latter, using my old eight-frame hives to hold weak swarms.

SMALL HIVES THE CAUSE OF BEES CLUSTERING OUT.

Many people have so much of the spirit of scientific inquiry that they will not believe a fact is a fact unless it is substantiated by a formidable array of more or less plausible theories; so, here is my theory:

While our maximum summer temperature here is not so high as in the North, the sultry part of the day is much longer, giving the heat a chance to be oppressively penetrating. As a small thin-walled house or room is more uncomfortable in hot weather, so is a small hive. That bees are susceptible to the heat can be demonstrated by placing equal amounts of honey in an open dish and under glass (as in a Mason jar laid on its side so as to be easily accessible) on a hot day. In the open dish only a few, if any, dead bees will be found in the evening, while in the glass jar will be almost, if not quite, as much in bulk of dead bees as there was of honey in the morning. The only inference I can draw is, that the bees get sun-struck in the jar. Swarms often leave an entire frame on the south side unoccupied, and often a row of section boxes on the south side. On sultry days, the bees of my small hives are the first to lay out. We have had a dry hot summer so far this year. On some hot days almost all the bees of some of my small hives will be clustered on the outside of the hives, leaving little more than a corporal's guard on the sultry inside, while the large hives will have a good supply of bees at work on the inside.

We have been having a splendid flow of honey-dew for the past five weeks. Honey-dew, by the way, is the staple honey of this section, and it is a fine honey too. Although this honey-dew is abundant, there is much complaint of bees hanging out on the outside of their hives doing nothing. I attribute this to the heat. I have overcome it in my apiary by piling up supers on my hives until the bees quit hanging out, placing as many as three supers on one hive before any had sealed honey in them. I do not know how this will affect the filling-out of section boxes, but it put an end to loafing in all my hives but one. That one I divided. All my bees are now working in the most approved style, and are just piling up the honey. One of my nearest neighbors has fifteen stands of the Kretchmer pattern, about 10x12, inside measure, and 14 to 18 inches high, with quite small entrances. With their top boxes they resemble, in pattern, a collection of thermometers, and are about as susceptible to heat. In ordinary seasons this neighbor has a good surplus of honey to market; but this season his bees are spending their harvest time in assembling on the outside of their hives. A committee of ventilation, consisting of the entire house, are giving their owner neither swarms nor honey.

Last year I put some swarms in hives with walls two inches thick. They did much better than those in common hives. They even built comb and stored honey in March last. This year I am making hives of two-inch oak plank doubled, making the walls of the hive four inches thick. I put 43 feet, board measure, of lumber into one hive. The lumber costs me only $5.00 per 1000 feet. If my theory is correct about the bees requiring a comfortable shop in which to do the most successful work, I think my four-inch walls will be a good investment.

Flowery, Ark., July 26.

THE EIGHT AND TEN FRAME DISCUSSION; A MATTER OF LOCALITY.

I am quite interested in your new Dovetailed eight-frame hive. I think the difference between eight and ten frames is somewhat a matter of locality—that is, of pasturage. In Passaic Co., N. J., our pasturage is rather poor but quite steady, and thus far I have found that ten frames give the best result; but I have had good results with smaller hives.

Paterson, N. J., July 30. John Phin.

[You are correct; locality has much to do with the matter.—Ed.]

BEE-KEEPING IN CUBA.

ITS WONDERFUL RESOURCES; A BIG RECORD FROM A WRITER OF THE OLD JUVENILE GLEANINGS.

By Fred L. Craycraft.

Mr. Root:—Having been here long enough to form a definite idea of bee culture and its resources on the island, I take this means of answering some of the letters of inquiry that I receive in regard to bee-keeping in Cuba.

My experience here is that, although the price of honey is less than in the United States, one can produce it enough cheaper to offset the difference in price, as the wintering problem is unknown here, and the advantage of being able to have 400 or 500 colonies in one apiary greatly lessens the expense. Another important point to be considered is the certainty of getting a reasonably good crop of honey; and the bee-keeper can count the number of colonies he has, and be able to tell very nearly the number of tierces of honey he will get.

I have never heard of the "campanilla," or bellflower (the chief honey source), being a failure; and it is not necessary to consult the rain-gauge to find out what the honey crop is going to be, as drouths are uncommon here, and it would take a very severe one to hurt the campanilla-vine.

During nearly three years' experience here I have never found it necessary to feed a pound of honey or sugar; and at the present time the bees are getting enough to work very well on comb foundation, although this is considered the worst season of the year for bees.

My report is as follows: Beginning in Oct., 1891, with 16 colonies, all very weak, none of them having over seven combs, I have increased them to 300 colonies and extracted 58,000 lbs. of honey. I might have got more last year, but did not have time to attend to them as I should have done, and had only about 160 colonies ready for the honey-flow, as I had to superintend the work on a 300-acre farm.

I do wish to say a word in favor of the leather-colored Italians, as my experience proves them to be superior to the five-banded or golden Italians, for they seem to be hardier and stronger, and the queens remain more prolific than the others during cool weather, which is very important here, as the honey-flow comes during the winter months. I still have some of the "golden" Italians in the apiary, but am replacing them as fast as possible; for the practical honey-producer who wants to see the most gold at the end of the honey-season must not look for so much gold on the backs of his bees.

The quality of the honey here is excellent, the honey of the flower of the campanilla-vine being of an exceedingly fine, mild flavor. But very little of the surplus honey is dark, as almost the whole crop comes from campanilla, which commences to blossom the last of November, and lasts until the end of July.

If the bee-keepers here would put up their fine honey in such a manner that it could be put on the northern markets as a first-class article, coming as it does when there is no new honey in the United States, it would bring a good price, and would not interfere in any way with the American production.

Nearly all the honey is bought by dealers in Havana who pay but little attention to color or quality, the principal requisite being thickness. Last season the dealers paid only from 3 to 3½ cts. per lb., free of package.

The readers of GLEANINGS would no doubt be surprised if they knew of the many modern apiaries springing up all over the island; but there are so few persons who have had any practical experience with bees, and the scarcity of Spanish bee-literature, that some of the beginners will undoubtedly make a failure. We need practical, experienced men who are not afraid to work; but there are two reasons that will always deter Americans from coming to Cuba; namely, the language, and its being out of Uncle Sam's domain.

In closing, I wish to say to those who think of coming to Cuba that she has the finest climate in the world, and many advantages; but, think twice before jumping.

San Jose de las Gajas, Cuba, July 28.

[Our older readers will perhaps remember that this same Fred L. Craycraft is one who used to write, when a mere boy, quite spicy and pithy articles for the old JUVENILE GLEANINGS, now merged into the regular issue of the 15th of the month. Although Cuba is no doubt one of the finest, and perhaps *the* finest, bee-countty in the world, friend Craycraft, it seems to us, has made quite a record—from 16 colonies, very weak, an increase of 284, and 58,000 lbs. of honey. Such marvelous yields as this would pay pretty well, even if the honey did not bring more than 3 cts. per lb. Why, that is better than 10 cts. on a fair crop of 10,000 or 15.000 lbs., such as bee-keepers in this country would count as a fair yield. We have asked our friend Mr. Craycraft (we say "Mr.," because we assume he is now man grown) to let us hear from him again.—ED.]

THE VALUE OF PATENT MEDICINES.

THAT NEW BEE-DISEASE IN CALIFORNIA; STARVATION THE SUGGESTED CAUSE.

By Prof. A. J. Cook.

Dear Mr. Editor:—You know it is a wonder to you and me that people will buy so much patent medicine. I believe I have the explanation. One feels ill, and, despite the fact that nature must work the cure, and usually finds it hard enough without any added embarrassment, he drinks in the spirit of the age, which urges us to meet pain with medication, and buys and takes the patented stuff. Usually nature is enough for both disease and medicine, and the medicine gets the credit of the cure, when, more likely, it was nature's handicap.

I purchased several colonies of bees, and purposely selected those with the new bee-disease and those that were suffering severely. It was a strange coincidence that those most diseased were nearest starvation's door. I supposed that the disease accounted for the paucity of honey. Well, the first thing to do was to feed, and so I could easily medicate. Fortunately, there were enough cases to use more than one nostrum. One colony was put into a new hive with nothing but empty frames, and liberally fed with fine last year's honey. New combs—fine ones—appeared very quickly, and soon there was an abundance of brood, pollen, (isn't it strange that bees can gather liberally of pollen, though unable to secure any honey?) and stores, but not a sign of the disease. First cure, transfer into a new hive, and feed. No. 2 was simply fed honey with phenol, and this was likewise cured. Cure No. 2, phenol. No. 3 had salicylic acid, and was also cured, and so we have a third remedy. The others were fed only the pure honey, and it is certainly true that they too are all cured.

Now, if I were given to betting I would wager my best hat that the whole trouble was starvation. I may be wrong, but it looks surprisingly like it. The story goes, that a penurious man sought to teach his horse to live without eating. He was succeeding well; but, unfortunately, the horse died just before the experiment was concluded. Have we not been trying a like experiment with our bees? May be I am wrong; but it does look surprisingly that way to me. I have recently examined some colonies quite rich in last year's honey, and find no signs of the malady, while others, in the same apiary, destitute of stores, are much diseased. Our friends Wilder and "Rambler" saw none of the mortality in their hives—of course, not. Their bees are not on the verge of starvation. They are wise bee-keepers, and as cautious as wise. It was well in my experiments that I tried a variety of remedies, else one might have received undue credit. I wish patent-medicine takers could try such variety of cures all at once. It might be an eye-opener, save to them their money, and, I am sure, nature would have an easier struggle.

Now, if I am all wrong in the above suggestion I hope I shall be pardoned. It is very important. It is certainly true that many colonies of bees in this section must be fed speedily or they will be lost. If fed, I think the fell disease will soon disappear. It must be remembered that, when breeding rapidly, bees need much honey. When there is but little, some brood must be ill nourished, and the scattering corpses in the brood-combs would result. Some bees might mature and yet be paralyzed, or have a sort of "St.Vitus dance;" and so it may be true that the bee-paralysis, in some cases, may have a like cause. Of this last I am less certain. Mr. Herron is of the opinion that the two diseases are distinct. Some of my colonies seemed to have both maladies; but with full rations both are gone.

Claremont, Cal.

[From the description given by Rambler of this new bee-disease which has been running in California, it is possible it is the same thing that we have had in our own locality, and have in a few of our colonies at the present time. As it has done before for us and our neighbors, we think it will do again — go off of itself. *If* starvation is the cause, when the affected colonies are supplied with a lot of fresh stores, the disease cures itself, and hence apparently "goes off of itself." But over against this is the fact that we had some colonies at our outyard that seemed to develop the disease in the height of the basswood flow, and in one of the heaviest honey-flows we ever had; nor did the dead brood manifest itself before that time. For this reason it is barely possible that the California trouble may be quite different from ours, although resembling it in outward appearance. But your experience with medicine illustrates just how one may be led astray. One less careful than you might have tried carbolic acid or salicylic acid alone; and if starvation were the cause, the *feeding* would, of course, effect a cure, but the *medicine* would receive the credit.

Now, lest some of our friends may be alarmed at this peculiar malady which may appear among their bees, we would state that the dead brood, while resembling foul brood in color, and in the perforation of the capping, is quite different in character. The skin of the dead larva is tough and leathery, and the tissue milky but not ropy; neither does it have the odor of foul brood; and, moreover, it does not appear to be contagious. See editorials.—Ed.]

FAX.

By Ellery Krum.

Why not kompromise the kontroversy by settlin' on a 9-frame Dovetailed hive?

Durin' a skeercity of hunny, and when robbers git plentiful, you kin allus introduce a queen safely by makin' the colony broodless as well as queenless, replacin' the brood after the introduction.

Milkweed bloom comes in purty handy at the wind-up of the seezin; but it don't take much to scent up the hull hive with the same flavor.

It is natural fer hybrids to be born mean; if you doubt it just give a frame of 'em to a colony of peaceable Italians, and when they hatch out every bee in that hive will ketch the taint of their evil inflooence.

My friends, you ken help suppress adulterashun of hunny by creatin' a lively home market with the pure artickle. People out here is gittin' edukated to knowin' what good hunny is; and when some one imports enny kounterfit stuff it goes off mity slow.

A thrifty layin' queen don't look into every cell when about her work, but gits sort o' keerless at times and deposits eggs in cells partly filled with bee-bread.

Thay is a fixed and immovable rule by which the bee is governed, and all a feller has to do to be successful with 'em is to foller rite in harmony with it. You must not expect any invenshun to work that is made in opposishun to that law.

Slum Gum kep' a stand of bees
Underneath the apple trees,
In a box hive, six feet long;
And the bees 'peared awful strong—
Humped themselves until thay made
Lots o' hunny; then they laid
Sort o' lazy in the shade
Of them trees, till Mister Gum,
'Long in October, went plum
Down to the cross-sticks and he
Tuck out hunny, my-oh! three
Dish pans full; but 'long next spring
Wuzn't left a single thing
Of 'em but old combs and dead
Bees; and yit he skratched his head
And said that he felt quite blue
'Cause thay never wintered through!

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

BROOD IN THE SECTIONS.

Question.—What is the cause of bees filling the sections with brood, and drone brood at that? What is the remedy for it? I put on one case of sections some time ago, thinking that the bees were crowded for room, and perhaps would be forced to swarm when there was no bloom to sustain swarms, and I find the above result. Would you destroy the drone-comb, or shave off the heads of the drones in the cells? Please answer through your "Seasonable Question" department in Gleanings.

Answer.—The querist seems the more surprised that the brood found in the sections was drone brood, while if *I* should find any *but* drone brood in sections I should be as surprised as he; for I have yet to see worker brood in sections, unless the colony was a new swarm and commenced housekeeping upstairs, as is sometimes the case where sections filled with foundation are placed on the hive when the swarm is hived, with nothing but starters or empty frames below. Where swarms are hived on empty frames, the sections should not be put on till the bees get well started at comb-building below—say in three or four days after the swarm is hived. But where empty combs or frames filled with comb foundation are used below, then the sections can be put on at time of hiving the swarm if wished. But as to the cause of the drone brood in the sections, if, as is usually the case with most bee-keepers of the present time, the questioner had restricted the drone comb below, the natural consequence would be drone brood in the sections, if the bees were allowed to build their combs in the sections without the use of foundation, and especially so with a light flow of honey and plenty of pollen; for at such times the bees rear large quantities of brood, and prepare for swarming by starting as much drone brood as is possible, the same being limited only by the amount of drone comb the queen has access to. I gave up the idea, long ago, of having hives absolutely free from drone comb; and if I were to be called to choose between no drone comb in a hive or one full frame of the same, I should say the full frame; for the bees will have some drones any way, and I should prefer a full frame of drone comb, placed in a certain position in each hive, to having a little patch of drones here and there all through the combs and in the sections; for then I know just where all the drone brood in each hive is, and can manipulate it just as I wish. Don't understand, however, that it is necessary to have a full frame of drone comb in each hive; for where I have things just as I wish them, I allow about one-fourth of a frameful to each hive, but have that *all* in one frame, and the frame having said drone comb in it, in a certain place in each and every hive in the apiary. Wandering a little.

If I am willing that all colonies should produce drones, no further attention is paid to this drone comb during the season; but if I do not wish certain colonies to have any flying drones, then I open these hives, at the side where this frame having drone comb is, every 21 days; take out the frame and shave off the heads of all the drone brood, using the same knife which I use in uncapping combs while extracting honey, for the purpose. I have found this plan to be more economical, and less troublesome to the bees, than the use of drone-traps, or, in fact, any other method advocated for keeping down undesirable drones in an apiary. Having given the cause of drone brood in the sections, we will proceed to the remedy.

There are two ways to remedy this matter; and the one which I use most is the filling of the sections with very light section foundation. This keeps all drone comb out of the sections; and where there is no drone comb there will be no drone brood, providing we have a good prolific queen; consequently this trouble with brood in the sections is remedied by thus using sections full of foundation having the worker size of cells. Wandering again.

By thus using sections *filled* with *worker* foundation, we have very much nicer section honey as to appearance, after the sections are finished by the bees; for the capped combs having the worker size of cells are much more beautiful than are those of the drone size of cells, as all who have compared the two side by side are free to admit. Besides this, we have none of that wavy or washboard appearance in the combs of honey, which we often have where the bees are allowed to build the combs in the sections, as the bees start on the whole surface of the foundation in the sections at once, and thus bring the whole out "bodily," as it were, so that the slackening or increase of the honey-flow does not result in the shortening and lengthening of the cells, as is the case where the combs are built entirely by the bees, especially where black and hybrid bees are used.

The other plan of keeping the queen from the sections is by the use of a queen-excluding honey-board between the sections and the brood-chamber. This will effectually prevent brood in the sections; but such honey-boards are expensive, both in time of putting on and taking from the hive; room for storage when not on the hives, and in the money used in their purchase; or of material from which to make; while they do not do away with the undesirable looks of the finished product in the sections, unless the sections are filled with foundation; and many claim that they should not be used in any event, on account of their lessening the amount of our honey crop on account of the bees being loath to pass freely through the perforated metal. Regarding this latter claim I have my doubts, but consider all of the others as important.

Having given the remedy, what shall be done where we find brood in the sections before we knew of or have applied the remedy or preventive? This all depends upon what stage the brood is in when we find it. If it is found before the brood is sealed over, we have little waste except our time in taking the sections from and putting them back on the hive again; for it is well known, that, if unsealed brood is taken from the bees and kept in a cold place for a week, the same is killed; and such killed or dead brood will be removed by the bees as soon as they have access to it. My plan used to be, before I learned of the prevention as given above, to take sections, found with eggs and unsealed larvæ in them, to the cellar, and there leave them for four or five days, when they were returned to the hives again; and, if the queen did not deposit more eggs in them, they were filled with honey; and when finished were as good as if no brood had been in them. If the brood in the sections had been sealed long enough so that the larvæ have begun to spin their cocoons, then the best thing to do is to cut the comb from the sections; for honey stored in combs having cocoons in the cells is not just the thing for table use, unless this honey is separated from the combs by the use of the extractor, even though the same be sold as a second or third grade of comb honey, which it would have to be if sold at all, on account of the dark color the cocoons would give to the combs.

TRADE NOTES
BY EARNEST R. ROOT.

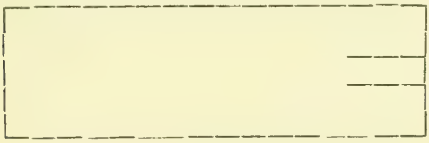
PREVENTION OF SWARMING.

DR. MILLER INVENTS ANOTHER NON-SWARMING ATTACHMENT; HOW TO MAKE IT, ETC.

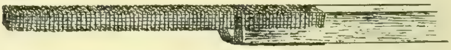
By Dr. C. C. Miller.

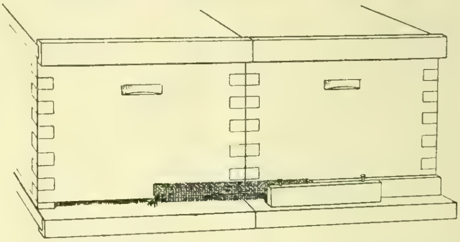
Prevention of swarming is one the liveliest topics considered by bee-keepers nowadays, and I was keenly interested in Langdon's non-swarmer. On trial I found some points about it that were troublesome. I therefore got up one of my own, using, however, the principle on which the Langdon works, throwing all the bees alternately from one to another of a pair of hives. Possibly I may never use it again, but others may like to try it.

The arrangement is quite simple. Two sticks, two nails, two tacks, and a piece of wire cloth are the materials needed, and the size of the sticks and wire cloth may vary greatly, all that is necessary being to have a passage from the hive opening in front of the other hive. For the sake of being definite I will give definite dimensions, and these any one can vary to suit his own notions.


WIRE CLOTH CUT READY TO FOLD.

First a pine stick half an inch shorter than the width of the hive-entrance, the other dimensions being 1 inch by ½ inch; then a piece of wire cloth 8 by 2½ inches. At one end of the wire cloth cut two slits 1½in. long, the slits running lengthwise, and 1 in. from each edge. In order to form the wire cloth into right shape, a special stick should be made. Take a piece of stuff ½ inch square and 8 or 10 inches long. On one end lying lengthwise of the stick, nail a piece ½ inch sqaure and 1½ inches long or longer. Of course, this may be made of a single piece by properly sawing. Now form you wire cloth on this stick. Bend up at a right angle the middle tongue of wire cloth made by cutting the slits, and fold the wire cloth around the stick, crowding the tongue tight up in the angle that was made by the little piece that was nailed on. Bend the projecting part of the tongue down on the stick. Now slip the wire cloth off the forming-stick, and push into it one end of the stick first mentioned. Don't push it in as far as it will go, but stop short half an inch, and drive a tack into the end of the tongue, and also one into the two thicknesses of wire cloth on the opposite side from the tongue. Those two tacks are all that are needed. The stiffness of the wire-cloth will suffice to keep all in shape.





It is supposed that you have two hives standing side by side, as close as convenient, say with an inch of touching. Now put your non-swarmer at the entrance of one, letting the tube of wire cloth project in front of the other hive. The entrance of the first hive is entirely closed except a place half an inch square where there is nothing to prevent the bees coming straight out. Put the end of your finger against this hole, and the bees can still get out of the hive by going through the length of the tube. Standing to hold your finger there becomes tiresome, so you may close the hole by any other means, and may use one that will at the same time hold the non-swarmer secure in its place. Take a stick 8 or 10 inches long, and of almost any dimensions otherwise, say ⅞ square. An inch or or so from each end of this stick drive in a wire nail of small size, but it must be long enough so that you will drive it clear through the wood and have the point project about ¼ inch. After putting your non-swarmer against the entrance, push this shorter stick up against it and push down so as to drive the two nail-points into the bottom-board. Of course, it must fit close at the one end so as to shut entirely the hole that would allow the bees to come straight out through the wire cloth, compelling them to pass out through the tube.

One advantage of this arrangement is, that the free hive is entirely free—nothing to hinder its ventilation, and nothing to hinder the bees going out and in just as freely as though there were no non-swarmer within a mile.

There is no danger of the escape-tube being clogged. It is no smaller at its outlet, and is half an inch square throughout its entire length. I suppose it could just as well be an inch square if desired, for on account of the position of its outlet no bee would think of going back through it.

The position of this outlet in front of the adjoining hive I count quite an important item. The bees that try to get back into the closed hive will, of course, make their attempt at the accustomed place of entrance; but finding that closed they will not spend much time fussing, but run along the outside of the tube to the other hive.

One thing in the deportment of the bees seemed curious. When a bee came out through the tube I expected to see it fly off to the field, possibly stopping to mark its location. Instead of that, it crawled directly from the outlet of the tube into the open hive. Possibly, however, that may not have been the general rule, for I had not much time to watch them.

I kept two of these non-swarmers in use last year; and if I wanted to continue that kind of interference I can hardly think of any thing I should want better in the device unless it would be to have it a little more substantial; for if a lot of horses should tramp over it some little straightening up would be needed before further use.

Changing the device from one hive to the other is a short job, but not so short as with the Langdon. Mr. Langdon now advises the change to be made every three or four days. Perhaps it would not be a bad plan to change as soon as the bees begin to drag out drone brood; for when drone brood is dragged out it is hardly to be supposed that there is any idea of swarming.

I have seen the fear expressed, that, with the Langdon non-swarmer, much worker brood would be starved. I did not find this to be the case; and, from the bees and brood being kept alive through a week's confinement, it would hardly seem that water is so essential as is generally supposed.

I might have done better with the illustrations before me, but I hope I have made it clear.

Marengo, Ill.

[Dr. Miller has, it seems to us, considerably simplified the Langdon device. Although we have not tried it, we see no reason why it would not do as well as his arrangement.—Ed.]

REPORTS ENCOURAGING

We have the grandest run of honey that there has been for years, in quality and quantity.

Pleasant Hill, Ohio, July 1. H. D. Cox.

The honey-yield is great this season. I took about 148 lbs. per colony (spring count) before June 1. Quality, very fine. Joel A. Barber.

Chuluota, Florida, June 2.

Bees are doing finely on white clover. Basswood just commenced to blossom, with fine promise of honey. H. M. Ballou.

Calumet Harbor, Wis., July 2.

The white-honey crop with me has been fair It will average about 50 lbs. to the colony; 700 lbs. extracted and 850 comb will about cover my crop. D. I. Wagar.

Flat Rock, Mich., July 25.

Bees are doing well. I had 25 colonies come through all right, and have had 8 swarms already; and if it is clear, two or four will come out to-morrow. This is what makes me want foundation. J. Prichard.

Port Norris, N. J., May 7.

Bees are doing finely now here, and it looks as though we should have a No. 1 season now. I have surplus sections all sealed. I was in a gentleman's yard to-day, and he had quite a lot that would do to take off by the last of this week, if we have good weather.

Littleton, N. H., June 25. T. M. Stevens.

SPLENDIDLY ON BASSWOOD.

Bees have done splendidly on basswood; no clover before basswood, and I don't expect any thing after; too dry for clover, and a poor prospect for any fall bloom of any kind here.

Kickapoo, Wis. G. W. Wilson.

48 LBS. OF COMB HONEY PER COLONY.

Bees are rushing along rapidly yet. It is getting dry now—a very nice season. They will get about 48 lbs. per colony, section honey. I have one colony that did not swarm, that will crowd 100 lbs. pretty close. S. D. Rutherford.

Kerneysville, W. Va., July, 18.

REPORTS DISCOURAGING

You can put me in Blasted Hopes this year. Bees in these parts have done comparatively nothing. T. E. McLean.

Thompson's Station, Tenn., July 23.

Bees are not doing any thing at present. We have had no rain for four weeks; white clover is blooming very poorly, owing to the drouth. Crops in general are looking well, but need rain. J. A. Krehbiel.

Donnellson, Ia., June 9.

This has been, so far, the poorest year with us that I ever saw. There seems to be no nectar for the bees. I shall not get 50 lbs. of honey unless it comes in better. I have sixteen colonies, and all are strong. James Fritz.

Fredonia, Pa., July 25.

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He that ruleth his spirit is better than he that taketh a city. —PROV. 16: 32.

ROBBING SICK PEOPLE.

IT is exceedingly encouraging to have such excellent authority as our good friend Prof. Cook back us up so solidly as he does in his remarks on page 655 in regard to wasting our hard earnings in response to traps for the unwary, in the shape of enticing newspaper advertisements of some new patent medicine or useless trap.

WE had no swarms at our out apiary, and yet the colonies were boiling over with strength. Why didn't they swarm? Because we gave the bees and queen unlimited room. Oh, yes! it is easy enough to control swarming when running for extracted honey, we know; but when running for comb honey the problem is entirely different. There are lots of ways to do it; but somehow they are either a good deal of trouble or else fail so often as to be practically good for nothing; hence most comb-honey producers will let their bees swarm.

WE have just learned from Mr. Francis Danzenbaker, who is visiting us again from Washington, on his way to California, and who has recently obtained letters-patent on a new hive that he has invented, that the Patent Office is divided up into departments, and that each department has its expert who makes a special study of all inventions coming in said department. Well, it seems that bee-keeping was a subject of too small importance to be in a department by itself, and so it was put with —what do you think? *Tobacco-growing!* This same expert, who has charge of all apicultural inventions, is also versed in every thing that has been done in the way of inventions for making cigars, cigarettes, etc. Said Mr. Danzenbaker, with a sly wink, "The Patent Office puts bees and tobacco together; but A. I. R. separates them."

THE BICYCLE AS A DRAY-WAGON.

YES, we have been using our machine, the Victor Flyer, for that very purpose. We have been carrying down upon our back, packsaddle fashion, two or more hives filled with frames of foundation, so as to give those basswood bees more room. (We wish we had to do it just now.) We managed, on the different trips, to carry nearly a one-horse wagonload, and without any great inconvenience either, except that passersby on the road stared at us as if wondering what sort of "thing" that was, going along. But we got used to all such, because — business is foremost, and pleasure and conventional ways of doing things secondary.

HALF DRONE HALF WORKER.

THE accompanying postal card came to hand. and will explain itself:

Mr. E. R. Root:—I found a curiosity yesterday—a bee with a worker's head and chest, and a drone's posterior parts — no sting; one pollen-basket. This may not be any thing new to you, but I never saw it before. I have read about hermaphrodite bees. The bee has a crippled wing. You can easily pick it out from the rest. WILLIE ATCHLEY.

Beeville, Tex., Aug. 1.

The cage came before the card. Upon first examining the bees, we did not notice any thing remarkable; but upon reading the card we find that there is indeed a drone among the bees, having a worker thorax, the legs of a worker, and the tongue of a worker. The only feature that shows he is a drone is the abdomen. It is no larger than that of the worker-bee; but it is rounded at the end, and shows in every respect that it is unmistakably a drone abdomen.

WORKING WITH BEES AFTER DARK.

THE robbers have been so extremely bad of late, and not having any old combs filled with honey, which we desired to empty by the slow-robbing plan, we thought we would try working with bees by lantern light. With the aid of an assistant we got along "swimmingly" for a while; but in a short time the temperature of the air began to fall, and the temper of the bees began to rise; and, oh what nasty stings they would give us! They had a fashion of crawling down into the pockets, up the sleeves, etc., until we finally gave it up as a bad job—actually routed from the field. Years ago we worked with bees by night very successfully; but on this particular evening it was any thing but a success toward the last. At first we thought we should get along nicely, remarking at the time that Doolittle and a few others seemed to have a great deal of trouble with nightwork—but *we* never did. The words were hardly out of our mouth before we began to wish we had not said it, and the result was finally as stated.

SMOKER FUEL — WHAT KIND IS GENERALLY USED?

A CORRESPONDENT of the *American Bee Journal* prefers dry planer shavings for smoker fuel. Our boys use this fuel when they can not get the fuzzy kind of sawdust that comes from sawing out handholes in bee-hives and shipping-cases. This latter we much prefer because it gives a much denser smoke, and burns longer; but planer shavings are more available to the majority of bee-keepers, hence they are more generally used, perhaps, than any other fuel. They are easy to light, and can be had for the asking at any of the mills—yes, bushels and bushels of them. We notice that many farmers use corncobs; but such fuel is not easy to light unless one has ready access to live coals; and during the summer weather the kitchen stove is not always going. By the way, don't forget that a small spring-top oiler, filled with kerosene, is one of the handiest things to have about in lighting a smoker. Fill the smoker with fuel; send a few squirts of oil upon it; touch a match, and it is going in a jiffy.

Perhaps we ought to state that some use and recommend (among them Mr. Bingham) stovewood cut up into short lengths; but we never liked this as well as planer shavings or "handhole sawdust," for the reason that it does not give as dense a smoke.

THAT DEPARTMENT FOR BEGINNERS.

Very often what *we* consider old and common property, but which we ourselves use with pleasure and profit, is something that many an old veteran does not know of. Many a thing contributed for the special benefit of bee-keepers is used by the veterans. We wonder how many of our readers prize the new department, "Answers to Seasonable Questions," by G. M. Doolittle. While it was primarily intended for beginners, it seems to have much of value to the veterans. Well, here is a sample of what one writer thinks of the department:

> I wonder if you have the least idea how much help is got by beginners, like ourselves, in bee-keeping, from the "Answer to Seasonable Questions," by G. M. Doolittle. J. H. Seward.
> Fulford, Que., Can.

We have felt for quite a long time that such a department was needed; and in December last, our mind turned involuntarily toward Doolittle as the right man, because he is such a careful student of nature—one whose book is the bees themselves; that is, he will watch for hours to find out how they do a certain thing instead of guessing at it, or going to some one else who is considered authority. His notes began with the first issue of this year.

DEAD BROOD; NO MORE BEES OR QUEENS WILL BE SENT FROM THE HOME OF THE HONEY-BEES THIS YEAR.

Reference is made in another column to the fact of our having dead brood in our apiary. As there stated, we do not have any apprehensions that it will make us any trouble, because we think it will go off of itself. Inasmuch as we do not know very much about it, its cause or its cure, we stopped sending out queens from our apiary nearly a month ago, all orders being filled with queens received from the South, or from Neighbor H.'s apiary, which so far appears to be entirely free from this peculiar malady. One colony, in which the dead brood first appeared, seems now to be healthy and all right, and nothing was done but to remove the queen and put another one in her place. The queen from the affected colony was put into a healthy one, to see whether she would carry the disease with her; but so far her adopted colony seems to be all right, her brood hatching out as healthy and nice as that from the previous queen. Perhaps many would not consider the course we are taking, of not sending out any more queens from our home yard, as at all necessary; but we prefer to err on the safe side, even though it does stop the revenue coming in from our own yard.

We have been receiving, almost daily, samples of brood, the senders asking whether it was real foul brood or this dead brood spoken of in the July 15th number of Gleanings, page 589. Of the two dozen or so samples so far received, only one was foul brood. This shows that the disease is much more prevalent this year than any year we have known of before.

Now, our theory as to the cause of this disease is superheating of the brood. We have had in our locality, and, in fact, all over the country, as you all know, extremely hot weather.* Those colonies that were well shaded do not seem to be affected; and in an apiary entirely in a large orchard, no trace of the trouble appears. Again, we know that the dead-brood disease is making havoc in hot climates, while in the cooler climates, if it appears at all, it goes off of itself without treatment. And, again, the disease is much more apt to appear in very populous colonies, especially if those colonies have a contracted entrance.

PAINFUL STINGS.

For the first time in many years we have suffered from the effects of a single bee-sting. We were stung on the fatty portion of the forearm, a bee having crawled up the sleeve. When we felt the sharp pain, of course we smashed her beeship, and thought nothing more about it. But the arm began to ache. In about two hours afterward we investigated and found the sting imbedded in the flesh its full length, and an empty poison-bag. We drew the sting out, and thought, of course, the itching pain would cease. The next day we were lame along the whole right side; and somehow it was convenient to lie down two or three hours, a dizzy or heavy feeling taking possession of us, something akin to that after recovering from a sick-headache. Had the sting been withdrawn *promptly*, possibly none of these effects would have been noticed. We have since discovered that we were stung over a vein; we remember that the pain seemed to be scattered for a few moments over the whole body. If we had been an ordinary greenhorn around the bees, we should not have been surprised; for the fact is, a sting generally has little or no effect beyond the first sharp piercing pain; and as to the swelling, we have had nothing of the sort since the time when we went around barefoot, some twenty years ago.

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*The Weather Bureau reports this summer as being far the hottest in many years.

A COLONY OF A DOZEN BEES.

A few days ago we received a dozen bees of the five-banded sort, in a Benton cage, from J. E. Hand, of Eldora, Ia. They were sent to us for our opinion as to their general markings. We pronounced them to be A No. 1 five-banded bees, of course; and, feeling sorry for the little fellows, we pulled back the wire cloth and laid them on the stone sill of our office window. This we have done many times before with other cages of bees; but never before had we known the little chaps to stay by their cage, and hold it as "home, sweet home," for so long a time. Yes, they held it for two weeks, and would protect the mouth of the cage against all intruders. A number of times we jarred the cage to see what they would do. They would fly out and resent the intrusion as quickly as if from a strong colony; and if a robber attempted to come around smelling of their little store of Good candy they would pounce on said robber as if they were defending a home of fifty thousand individuals. Indeed, they would, in all probability, have been there till now—a month —had it not been for several dashes of rain that seemed to wash them out of house and home. If they had had a queen we should not have thought so much about it; but here they were, trying to keep house, with nothing but a wire cloth to cover their poor little heads from the weather—without a queen, without comb, without any thing save a small cage that had been sent here with a one-cent postage-stamp.

THE DIFFERENCE BETWEEN A POOR AND A GOOD QUEEN.

At our basswood yard we had one queen that seemed to have a laying capacity of only about one frame of brood at a time, even at the height of the honey season. When we first saw her we concluded, as she was a young queen she had not had a chance to lay in more than one comb. On a second visit, a couple of weeks afterward, she still had the equivalent of one comb of brood, although basswood honey was still coming in. We had a number of other queens in the yard, which would not only fill out their own hives with brood, but would lay in extra combs as fast as we gave them. We gave these frames of brood to weak stocks that needed a little stimulating and encouragement. "Well," thought we, "we will see what we can can do with this one-frame-of-brood queen. Perhaps we can encourage her to do better." So we went to one of the colonies of the good queens, took out four five frames of brood in all stages of growth, and gave them to the colony in question. The bees set up a hum of delight. Three weeks have since elapsed; the brood is all hatched out, and still there is the one frame of brood. Although this queen was young, we did not fuss with her any more, but pinched her head, and in her place shall be a prolific queen.

SHALL WE GO BACK TO GRANULATED SUGAR FOR A QUEEN-CAGE CANDY?

We have referred a number of times in this department to the fact that we were, three or four years ago, uniformly successful in sending queens to Australia, and that now we quite uniformly meet with failure. So far as we know, we have used the same kind of candy, made in exactly the same way. Why the difference in results when the cage is identically the same, and the seasons, as they go by, average up about alike? Well, we begin to think it is in the sugar. Our candy that gave such excellent results some three or four years ago was made of what is known on the market as "confectioners' sugar"—a sugar that is used largely for frosting on cakes by the womenfolks. Having had such good results, when this barrel ran out we ordered another just like it; but the queens sent on this candy almost all died on arrival at destination. We changed the candy again, with the same result, using the same grade. We have been wondering of late whether this confectioners' sugar was always made in the same way. We have reason to believe it is composed somewhat of starch, from its tendency to turn to lump, and perhaps in some lots they get in too much starch, and, mayhap, something else. Two or three have written us that granulated sugar, from the fact that it is absolutely pure, and can not be adulterated, gives uniformly good results. We are on the eve of trying it again; but meanwhile have received a letter written to Mrs. Atchley by our old friend and correspondent Ph. J. Baldensperger, who, it seems, sent Mrs. A. a couple of queens which arrived in perfect condition. The nature of her letter will be evident from his reply.

Mrs. Jennie Atchley:—Yours of the 29th June is at hand. I am glad the cage and bees arrived all right. The way of making my candy is most simple. I took common beet sugar; pounded it as fine as possible, then dropped in cold extracted honey till the dough was so firm it would hardly flatten down when made into a ball. Don't you think the double compartment of cage is very good, and, together with the candy, is one of the secrets of success? This is just what I did. Of course, I picked out young bees to accompany, and some full of honey.

Nice, France, July 16. **Ph. J. Baldensperger.**

We would explain that the cage referred to is a sort of double Benton, of the larger sizes. Two cages were put together, a small hole connecting them. Mr. B. attributed a part of his success to this cage. The secret of success, in our estimation, is in the candy; for with good candy—that is, one that is perfectly made of the right material—there would be good results in almost any cage.

SHALL WOMEN RIDE WHEELS?

A. I. ROOT IS ASKED TO GIVE HIS OPINION.

Mr. Root:—What is your opinion in regard to women riding wheels? Is there any thing unladylike about it? In some localities many think a woman should not ride a wheel; but I say, *if* not, *why* not? A WHEELER.

[My good friend, perhaps you have come to the wrong one to answer your question. Two of my daughters ride wheels, and my son's wife rides one; and Mrs. Root expects to ride as soon as she can learn how. She complains that the weather is too hot in the month of July; and if you want my opinion further, it is this: The advantages of the wheel are so great I do not see how women can be debarred from riding. Our daughters have both been greatly improved in health by riding the wheel. They are independent of horses and buggies, stage coaches, and, to some extent, the railroads. While they are gaining in health they do a dozen little errands for themselves, their mother, or friends. Nobody has to hitch up a horse nor put it away; no expense for oats, hay, etc. I know that some say it is well enough for girls, but that for married women it is not the thing. I frequently meet my daughter-in-law about town, making purchases. Sometimes I go with her to the cemetery, where she puts fresh flowers over her mother's and father's remains. The cemetery is fully a mile away. With the aid of a wheel she goes over evenings any time when she feels so disposed. When it is necessary she can visit friends on her wheel, even 20 miles away; and if you want my opinion in regard to how it looks, I answer that I never saw her look more like a picture of health, and what a woman should be, than when on her wheel. As she is rather heavier than our daughters, she was longer in learning how; and some of her friends feared at first she would never learn to ride; but now she gets off and on her wheel easily, and, perhaps I may say, gracefully, and is perfectly at home in the management of it. I do not think she has had a fall since she first commenced while she was learning, and no accident of any kind.

It seems to me that women *must* ride wheels. There is not any need of arguing the matter, for the wheel itself is rapidly settling the question. If it should transpire that this one thing of wheelriding shall of itself result in banishing the foolish fashion of skirts that sweep into all the filth on the sidewalk, then I shall think the wheel has done another good thing in the way of a reform in dress as well as a reform in health.

Please pardon me for saying a word more in regard to the benefits of wheelriding to myself. During this hot July weather I am tempted to think, a good many times, that I am too old to be of much more use in the world; but the wheel cures me of all such notions every time. Yesterday I rode 27½ miles before dinner. The last 7½ miles, over a graveled road, I made in 30 minutes. I arose in the morning between four and five; had no breakfast but crackers and milk, and my favorite apple-sauce. I did not have any nap before dinner—didn't feel the need of any, and, in fact, was not particularly hungry, even though the dinner was a little after my usual time. In the afternoon I rode nearly as many miles more, and came home feeling unusually well, not even feeling tired and sleepy before half-past nine. This forenoon I have felt strong, vigorous, and well—more like riding another 20 miles than doing any thing else. Instead of feeling the need of any sort of medicine or doctor's stuff, or even stimulants, I have a healthy appetite for plain food and nothing else; and when thirsty, all I want is pure water, or perhaps, when I feel faint, a glass of milk in place of the water.

Now, the wheel has produced equally astonishing results with thousands of other people, as you may perhaps know, besides saving them money by such a cheap method of travel. All this being true, can anybody think of saying that women must be debarred from the use of this new gift that I think came right from the good Father above? The only objection that can be raised is, that some people think it is not ladylike. Oh, yes! perhaps I should add that Mrs. Root says it is hard on women's clothing. This may be true where either a man or woman rides, say, 20 miles a day—that is, if they insist on being well dressed according to the prevailing fashion. If fashion should change, however, so that it becomes fashionable for both men and women to dress especially for, or with the end in view of, facilitating wheelriding, then the last objection will disappear. I do not know what the outcome is going to be. I am waiting and watching, not only hopefully but joyously.

OURSELVES AND OUR NEIGHBORS

BY A. I. ROOT.

How can one enter into a strong man's house, and spoil his goods, except he first bind the strong man? and then he will spoil his house.—MATT. 12:29.

Perhaps I should say, in the commencement, that the passage above was presented to my attention by our pastor, in a brief little sermonette to the children, just before his regular sermon. He told the children that the figure of the house meant each one of us ourselves—not only our bodies, but our dispositions, our characters, our standing in the community—all these represent the house that it is our business to protect. It takes hard work and a good many years to establish a reputation—a good name, as it is usually termed. Now, there are enemies constantly at work to destroy this house of ours—this human habitation. The enemy is Satan. His work is to spoil and trample in the dust; to ruin; to degrade; and wherever he can find a human being who does not keep watch, or act as a sentinel over the house, he will destroy it. The strong man is the soul—the immortal part that never dies. This soul, conscience, or principle, is watching and defending, and continually protecting the reputation, the good name, the purity, from the attacks of Satan.

The readers of GLEANINGS are doubtless all familiar with the way in which the sentinels of a bee-hive protect the stores within from robber-bees. Since the basswood season has closed, and little or no honey is to be found in the fields, every hive is tested and tried. If the entrance is a large one, robbers will be dodging up the whole length of it; and if there are not sentinels enough along its whole length to hold the fort, down goes the work of the industrious little colony and the commonwealth. Most of you have seen the devastation and ruin that robbers make in just a few hours if the sentinels become overpowered, or if they become disheartened, or heedless and shiftless. They seldom do the latter, however, while there is a fertile queen in the hive. They seem to know instinctively that there is no need of fighting unless there is a queen to keep their numbers constantly replenished. The welfare of the colony—in fact, the life of it—depends upon vigorous young bees coming on the stage continually to back up the veterans. Sometimes, when there is a robbing mania in the apiary, and we have not got a laying queen to put in each hive, we are obliged to substitute, instead of a fertile queen, combs containing eggs and very young brood. These will give a weak colony new courage; and I have seen them within fifteen minutes change from restless indifference to vigorous and effective warfare against invaders, just because every bee in the colony had been informed of the glad news that there were eggs and young brood to replenish and back up the corps of defenders of the hive. Well, I have seen boys and girls fight against the enemy a good deal in the same way; yes, and I am sorry to say I have seen them give up and let the enemy march right in, and ruin and devastate every thing most holy and sacred in that house. Just think of it, friends—every human being—every boy and girl—must sooner or later begin to protect themselves and drive out invaders. Robbers are all about us. It is just like the bee-hive. If they discover a human being who seems stupid, who does not know better, or who does not care, they march right in upon him at once. I read in a paper of some little boys who could not sleep because it would be Fourth of July next morning. They urged so hard to get up real early, and go out to see the firing, that their good mother finally consented to let them try going out in the world. Almost as soon as they came in sight, some bad boys discovered that they were unused to the streets, and one of these bad boys grabbed a painted tin horn, just because he was bigger than the little fellow who carried it. In a little time they were robbed of all their treasures, and went home with a tearful confession to mamma, saying that she was right and they were wrong. In this case the little friends were too small to stand up for their rights. They were not yet ready to go out into the world without mamma, some older brother, or a proper guardian. A good deal of the ruin of human character comes about in this way. Boys and girls are permitted to visit questionable places, before the strong man within has been sufficiently established to protect them from harm.

Let us now look at the matter with grown-up people. Evil men frequently plan to get a person intoxicated if they wish to rob him. Only last week the papers told of a boy from the country, who sold a load of garden-stuff in the great city of Cleveland. Somebody spied him, and guessed that he was not sharp enough to take care of himself. In a little time he was robbed of all his money and every thing else he had about him that was worth any thing. He told the police, with tears in his eyes, that he drank only two glasses of beer that somebody gave him. In that case the strong man did not do his duty. One need not go to the cities, however, to meet the enemy. He is lurking everywhere. A visit to our jails and penitentiaries will reveal pitiful stories and experiences of how the strong man was bound, first by some pretext or another. Sometimes, like Samson of old, the strong man is led away from his post of duty, and securely bound, by a designing woman. Sadder still, sometimes even *woman herself* forgets to keep guard, or voluntarily suffers the strong man to be bound. The enemy marches in ruthlessly; and, oh what ruin follows then! The very qualities that would make woman and motherhood the protector of innocence, are dragged in the dust.

In my wheel-rides I occasionally pass a great tall chimney in a little country place. For years this great tall chimney poured forth volumes of smoke; and busy workmen have had work day after day for years past. During the last year, however, that whole factory has stood grim and silent. I watch in vain for the smoke over that chimney-top. The whole community suffers. The busy workmen have gone away to find work elsewhere if they can. Do you suggest that they had nothing to do? Why, they had plenty to do. Orders were on hand when the factory shut down, and the business was in a prosperous condition. It was shut down almost without a moment's notice. One of the principal owners was a woman. She had managed well and wisely, and her character was above reproach. Reports, however, had got abroad that this woman was more intimate with the husband of another woman than was necessary. She had been held in such high esteem, however, that nobody believed it until all at once the neighborhood and community were startled by a terrible scandal. There was no evading it this time. The officers of the law had entrapped the guilty parties. One piece of iniquity and crime after another was unfolded; things speedily became complicated; and although the factory had been well managed, and every thing was in trim to go on with a profitable business, it had to be shut down. Its customers went elsewhere, and the expensive machinery is left to rust and decay for want of care. All this comes just because one woman had suffered herself to be bound by the snares of Satan.

Years ago there was a shameful bank failure, and a string of criminal defalcations was brought to light. The bank was all sound, and was doing a good business until the principal officer fell into dissolute ways. I was but a boy then, but I happened to be an eavesdropper one day when I could not well avoid it or get away from the voices near me. Somebody was upbraiding this officer of the bank. I often think of his words. He said something like this, in reply to what was said to him: "I fully realize that my reputation is gone. Yes, I fully comprehend that I have proved traitor to my best friends. I am no more worthy of the respect which my wife and her relatives still extend to me. My name is but a byword and a disgrace to the community round about; and I lost it; yes, I bartered it all for a silly thing I ought to be ashamed of, and that I *am* ashamed of. If no one suffered but myself, I shouldn't care so much; but it pains me to the bottom of my heart to see the innocent ones suffer—to see those who have been kind to me, and who have befriended me, suffer. I did not mean to bring all this upon me; I never dreamed such disaster could come just because of this folly." His companion spoke lower, and I could not catch what he said; but the guilty one replied: "Yes, I have one of the best women in the world for a wife. I have a pleasant home, and have, or have had, the best people in the world for my friends. There was no reason in the world why I should not have behaved myself and been a man. The best thing you can do is to kick me out of sight, and forget me as soon as possible."

I have reason to think that this man soon committed another crime—a worse one than all that had gone before—a crime that he intended should be murder. He nearly lost his life in the attempt, and died not very long after, suffering terrible agonies, both of body and mind. And those who suffered by his downfall are scattered throughout our community even yet. All this came about by giving way to temptation—by permitting the strong man of the house to be bound and rendered helpless by letting *impulse* and *passion* rule instead of conscience and manhood.

Perhaps, friends, some of you may think I do not know what it is to be tempted. May be you think I do not have desires and impulses, like the rest of you. It is not true.

A few days ago, in traveling over that nice graveled road between Cuyahoga Falls and Hudson, O., I made 7½ miles in 30 minutes, with my new 24-lb. wheel. That is not very much for one of the *boys*, I know, but I felt rather proud of it. After paying friend Terry a visit I started back. The wind was at my back, I had just had a good dinner, and felt very much like making speed. Just ahead of me was a smart young horse. The weather was very dry and hot, and even on this graveled road the horse and buggy stirred up a little dust. I started to go by, as I usually do, but the driver accosted me something like this: "See here, my friend, may be you can go by us and may be you can't. But let's be fair about it. Here, I will give you the smoothest part of the road, and I will not get in your way. Now, sir, go ahead and put in your best licks." He seemed so pleasant and fair about it that it did not occur to me at first that I should be racing. You know how I have stood out, both in teaching and practice, against any thing in the line of racing or gambling. Yes, even when Huber urged me to go to the wheel-races to see him ride, I preferred to be excused. As his mother thought it was an almost harmless amusement, in the way it was conducted, I consented that Huber should go if he chose; but I felt that I could not conscientiously go, even with the boys, to the fairground, where they were to test their wheels and muscles.* Let us now go back to the graveled road.

I was so sure I could get ahead of the young horse that I did not try very much; but I gradually gained on him till I got ahead and then slacked up, as it seemed to be only a pleasant, good-natured test of what a modern wheel could do. He was not satisfied, but wanted to try it again. The horse was now getting warmed up to business, and it took a little more muscle to get ahead; but I finally left him far behind. I slacked up again; but I gathered from his manner that he was a little put out, perhaps to think that an old gray-haired man like myself should outrun his horse. He seemed to be trying to do something to that horse—I could not exactly understand what. But very soon the horse started to pass me on a gallop. I had heard the boys say that very few wheelmen could distance a horse on a dead run; but I had gone by so easily before, I thought I would just try it. I had work before me now in dead earnest. The horse kept going faster and faster, till he was bounding like a runaway. The strokes of my feet on the pedals were also getting faster and faster, and the light steel 24-lb. racer was quivering and twisting with the force of these heavy strokes like a willow whip. I was getting somewhat near to the limit of my strength; but I felt pretty sure that, if I would make one more desperate effort, I could beat the horse, even on a run. We were going at a speed that was terrific—at least, it was terrific so far as my experience went. The man was evidently vexed because I had beaten him twice, and he was urging his horse on at a mad rate. Of course, I was excited. Any one who has Root blood in his veins will tell you that a Root would die before he would be beaten—that is, if he were to let *impulse* and *passion* rule. Just here conscience began a remonstrance. It seemed as if I could hear the voices of both Ernest and Mrs. Root saying something like this: "O father! father! what *are* you thinking of? and do you *realize* what you are doing?" I slacked up and let the man go by. May be he would have gone by any way. I was not very much tired, and my strength was not exhausted. A dozen times I meditated even yet showing him what I could do. But I knew it was not right. If we had been going through a town where spectators were along the road, it would have been the most natural thing in the world for bets to be started. Some would bet on the horse, and some on your humble servant. God forbid! Nobody shall ever bet on me, or on any gift of brain or muscle that God has given, if I can prevent it. Had any thing broken about my wheel, or had even a screw come loose, it would have been broken bones or death. In fact, several deaths have resulted already from some accident in wheel-riding in this way. But that is not the point just now. It is the gambling and racing mania that we need to consider a little; or, if you choose, in the language of our text, it is the matter of letting passion and the racing-craze bind the strong man so that the poor victim really does not realize what he is doing, or, may be, is hardly responsible after he gets started. It is the same with all other kinds of sin. We get into it unconsciously. Again, I am not only a professor of religion, but I am a deacon in the church; and yet, there I had been straining every nerve in my body for—what? To get *ahead* of a man—a brother! Why, he too may be a deacon, for aught I know. Probably *not*, however. You see, I am condemning myself by my own actions. Well, I was quivering in every nerve to get ahead—to get ahead of my neighbor — ahead of that stout young horse trained for racing. I really do not know much about such matters, so I may be mistaken; but this spirit of wanting to get ahead of others—of your neighbors—what sort of spirit is it? How does it harmonize with that text I have so fondly repeated and quoted—"not to be ministered unto, but to minister"? How does it harmonize with the spirit our Savior taught among the poor and lowly? I hardly need tell you that this whole matter of racing, gambling, prizefighting (and it all hangs together, dear friends), is about as far off from the real spirit of Christianity as any thing can well be. The gambler, instead of following the injunction, "Do good, and lend, hoping for nothing again," grabs from his neighbor without giving him *any sort* of equivalent; without conscience or scruple he takes a poor man's hard earnings—the hard earnings that are needed to furnish his wife and children with bread and clothing, and he appropriates the same to himself. His whole aim in life is to get *ahead* of his fellows—to get above them by crowding them down and back. If God has given him strength of muscle, he uses that strength to wrest the hard earnings from the weak and defenseless, and yet he grows into this state of heart by easy steps. The whole attitude of the people engaged in our recent strikes has been so far off, and so far from the spirit of Christ, and seemingly so oblivious of the fact that Christianity is in our land at all, that one may wonder whether they ever heard of the Bible or Christian teachings. Such is the result of letting this world and worldly things bind the strong man or still the voice of conscience.

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*Perhaps I might add that Huber did come out ahead in two contests among boys of his own age—one for fast riding and the other for slow riding. By my advice, however, he refused to accept any prizes. I told him that, if I were in his place, I would not accept of even a doughnut or a stick of candy. Suppose, however, some of the spectators should choose to bet on the boy's strength and skill. Here is the trouble, friends. If you engage in any contest, you may, without knowing it, encourage the gambling and racing mania.

In the same chapter from which I take my text there is a beautiful verse describing the character of Christ Jesus; and it should also, dear friends, describe the actuating spirit of his followers. Let us read it: "He shall not strive nor cry, neither shall any man hear his voice in the streets." Perhaps some may think I am making too much of a little matter. They may say it is right and proper to test the speed of horses or of wheels. Well, I agree, providing the matter can be managed good-naturedly and without *strife*. In the contest above, I think my friend lost his temper when I came out ahead. Of course, *I* was pleasant and good-natured while I was the victor. It is easy enough for the man who *wins*, to look pleasant. When the circumstances were changed, however, and the horse ran ahead of me, I tell you it was a pretty hard tussle for me to give up. I was relating the circumstance to a lady. She is a cousin of mine, and has the Root blood in her veins. She too is a professing Christian. When I told her about it she declared that, if she had been in my place, she would have gone ahead of that horse if it had been a possible thing; and as I go over the matter and think of it, my blood yet tingles, and one part of myself seems to feel sorry that I gave up: but the better part—the *manly* part and the *Christian* part—says most emphatically, "Get thee behind me, Satan."

NOTES OF TRAVEL
BY A.I. ROOT.

ON THE WAY TO LAKESIDE.

In riding a wheel we need not go over the same ground unless we choose—that is, at a season of the year like this, when the roads are all passable; and I always make it a point to go one way and return another, in order to study the country and see more of God's gifts to his children. As there is an electric railway from Norwalk to Sandusky, I decided to run directly from Medina to Norwalk, and then, if tired, I could ride a portion of the way. By consulting my pocket-map I discovered that East Townsend, where H. R. Boardman resides, is a little north of Medina; therefore I took a diagonal bearing northward until I reached a point directly east of East Townsend. Then I selected an east and west road and followed it straight ahead for about 30 miles, and was pleased to find myself right before friend Boardman's door. By consulting the parallels on the map you can follow an east and west road pretty accurately; and I was pleased to find that a cheap pocket-map of Ohio was accurate enough for the purpose, and to find also that our east and west roads are laid out exactly east and west. I started at 7 o'clock, and had made something over 40 miles just as friend B. and his people were sitting down to dinner. His pretty home looks just as neat and tidy during our intense drouth as it does at any other time of year; and although he has but little basswood, comparatively, in his locality, he has, as usual, a crop of something over two tons of beautiful basswood honey. His bees were fed as usual, so as to have every colony full and strong when the honey flow opened. As the day was very hot, the bees were exceedingly busy taking water from a feeder of his own invention. He uses it for giving them pure water, or for giving them sugar syrup or any thing else he chooses. They are made of half-gallon fruit-jars, on the atmospheric principle. But he has an arrangement so that he can lift any one up to be replenished, and put it back, without injuring a bee. He also uses it as an entrance feeder, without having any unpleasantness, even though he was feeding thick sugar syrup right during the middle of that hot August day. His crop of honey hangs overhead in the room where he winters his bees. The room, although above ground, is as cool as a cellar, during the heated months of July and August.

After chatting until nearly time for the electric train to leave Norwalk, I started ahead. On reaching there I was informed that the electric car would not receive my wheel unless it happened to be one that had a freight car along with it. I asked what speed they made, and found I could pretty nearly equal it with my wheel, make a sure thing of my passage, and save my money. In all such cases, the simplicity of a wheel commends itself. In coming home on the same route I was informed at the office in Sandusky that it would be an hour and a half before any cars would leave Norwalk; and as 16 miles is not a big ride for that length of time, I found I could make the trip while I was waiting for the car.

Up toward the lakeshore we meet with a serious obstacle to wheeling, in the dry loose sand. By a piece of thoughtlessness I took in a strip of this soft sand for about two miles; and had it not been for the experience and drill that I told you of a year ago in coming from Akron after dark, Saturday night, I fear I should have had to walk the whole distance. And, by the way, when I tried hard that night to remember the Sabbath day to keep it holy, I made a big investment that I did not know of, in learning to ride through sand. One who has had little experience would declare the thing to be impossible; but I think I could manage to get through almost the worst piece of sandy road we have here in Ohio, without getting off my wheel; but it is hard work, and it does not pay unless you happen to get caught. Inquire ahead, and avoid sandy roads where possible.

I reached Sandusky just as the evening boat was preparing to leave the wharf, making 66 miles in about 7 hours, that being the longest ride I had ever made in one day. I wanted to make Port Clinton before going to Lakeside; therefore I purchased a ticket to the nearest point to Port Clinton, leaving the clerk to decide what point that should be. They landed me on Catawba Island. For a time I was somewhat concerned; for what can one do on a wheel on an island? Somebody kindly informed me, however, that Catawba Island is attached to the main land by a bridge. Catawba Island is at present the center of the great peach industry. When I arose next morning at the peep of day a sight met my eyes that was worth the whole trip. Beautiful luxuriant peach-trees were growing everywhere. The leaves were not curled, and the trees did not have gum oozing out of worm-holes. In fact, the trees were all healthy and sound, and models of thrifty luxuriance. Some of the trunks were as large in diameter as fair-sized apple-trees, and the heads are usually trained so as to be about evenly balanced. Each trip the steamer makes, it carries away great loads of baskets of beautiful peaches.

Catawba does not seem to be a town—at least, there were no houses except great boarding-houses. They are not hotels, for there is no sign out—at least, I did not see any; and I understand they are mainly for visitors, who use it as a pleasure-resort. There were formerly great quantities of Catawba grapes raised here; but they are now cutting them out and putting in peach-trees instead. The trees are planted between the rows of grapes, and the latter removed when the trees begin to bear. One of the passengers asked me what I supposed they called those peach orchards worth an acre. I guessed two or three hundred dollars. He said the orchards along the lakeshore, in full bearing, were valued at from two to three *thousand* dollars per acre. Surely, farming *does* pay—at least, some kinds of farming. Even away back from the coast, he said, the orchards were frequently sold for from five hundred to ten hundred dollars per acre. I supposed that we should, of course, have peaches on the bill of fare; but one of the guests told me they would have no peaches while they were so high-priced as at present, fine early ones bringing $2.00 and upward per bushel by the wholesale. I greatly enjoyed my ride through the great peach-groves, some of them comprising several thousand trees, and so on through to Port Clinton.

It was at the latter place that I had a pleasant visit with our friend Julius Johannsen, who has written somewhat for these pages. The drouth has been unusually severe in his locality; in fact, great cracks or fissures showed themselves in the rich black ground comprising his garden. He had an opinion that it was not of much use to cultivate while the weather was so very dry; but I felt quite certain he could stop the ground from cracking and get tolerable crops by keeping two or three inches of the surface soil stirred constantly, and kept fine and mellow. This is the secret of their raising crops without irrigation, in California; and, in fact, the finest peach-orchards on Catawba Island are cultivated so constantly that the ground was as fine and mellow as a posy-bed, and not a weed was to be seen.

Of course, there is not any honey when months pass without any rain. If I am correct, friend Johannsen has not yet taken a pound from his hives. His ground is nicely underdrained, and he is getting small fruits well started. His land is a little outside of the peach locality; but plums do beautifully, and he has something like 200 as handsome and thrifty trees as I ever saw. His plum-orchard is well-cultivated, and the earth is kept fine and loose.

A beautiful graveled road runs from Port Clinton to Lakeside. Just a word here about graveled roads. Through the sandy regions of the northern part of the State of Ohio I have been delighted to find some of the finest roads for wheeling that can be made. In fact, one can make better speed on them than he could on a road made of planks, paving-stones, or even sawed flagging. None of these can be laid so that there is not an unpleasant vibration as the wheel goes over the joint. With the graveled road, however, there is no break and no jar. It may be undulating a little, but these undulations are like the waves of the sea; and one feels, while riding at high speed, as if he were on the water. I have found the finest roads in Marion County. There they have also a soft dirt road at the side of the graveled road; and in summertime some of the teams—sometimes all of them—take the dirt road in preference to the hard gravel; this leaves the well-built and expensive road entirely for the wheelmen. As the surface of the road is made crowning, the summer rains wash off all soil, dust, and trash, and the rubber tires strike nothing but the smooth, unyielding graveled surface. One day, after plowing through sand and dust I struck one of these graveled pikes, with a pretty good wind at my back. It seemed like flying; and I pretty soon discovered that my rate of speed frightened the teams in the adjoining dirt road, and therefore I had to slow up in passing. I once had an opportunity, however, of running four miles without any thing to hinder; and as I looked at my watch it showed that I made the four miles in ten minutes. I do not think this can be, however. I must have made a mistake of about five minutes in looking at my watch. In making these fast runs, the chickens from the farmhouses are a great annoyance—not so much those that happen to be in the way, but those that get frightened by such an unusual sweeping apparition. I don't know what ails chickens' sense. Instead of running *out* of danger, they seem bent on running *into* it. They will manage to get right before your wheel, even if they have to run several feet in order to get there; and they will squall, and make the gravel fly with both legs and wings, in an insane attempt, apparently, to beat the wheel in a straight run. Of course, we do not want to hurt them; and I hope no wheelman is guilty of running over chickens when it can be avoided. If it can not, I think he had better offer to pay a reasonable price for the damage done.

By the way, where there is not a graveled road, there is now scarcely a road in Northern Ohio where the wheelmen have not apparently chosen a path on either one side of the road or the other. After one wheelman selects a fair runway, all the rest seem to follow by general consent; and the more the wheel-track is used, the firmer and smoother it becomes. Where the roads are very sandy, in a little time a very good path (a very *narrow* one) will be made right through the grass on the roadside. Such a path is not hurt at all by foot-passengers. In fact, the more it is used by the barefooted boys and girls on their way to school, the nicer it becomes. It is a great mistake, however, to let horses get into the wheelmen's path. I judge that something will soon be done for the protection and encouragement of a way expressly for wheels, where they will not interfere with other travel, and where other travel will not interfere with them.

In our next issue I will tell you something about my exceedingly pleasant visit at Lakeside; but I wish to mention one little incident right here. At one point on my ride I saw a fellow beating a poor old horse unmercifully. Without thinking of the consequence, I turned my wheel into his barnyard and was standing by his side so quick that he hardly knew where I came from. I asked him to stop whipping his horse. He was mad at my sudden intrusion, and refused. When I got out my pencil, however, and told him to please give me his name, he cooled off a little. He said the horse came very near running over his little girl, and he was going to teach it not to do it again. I told him I was a Christian man, but I believed in *law* as well as *gospel*, and that, unless he would give me his promise not to whip the horse any more, I would feel obliged to teach him something about the law. He finally promised, and, to make sure he would keep his promise, I told him I would ask a neighbor to keep watch of him; and if he whipped any more horses in that way he would be called to account. The neighbor told me that this man had been fined, several months before, for whipping the same horse. Now, here is a suggestion: Have such men put under this kind of bonds for good behavior. It may be best for *several* of the neighbors to join hands, in some cases.

Every thing is O. K. That Crane smoker is a dandy. THOS. MYERS.

Carsonville, Mich., May 22.

HIGH PRESSURE GARDENING

THE STERLING STRAWBERRY, ETC.

Mr. Root: — I do not know what to think of you, after the praise you bestowed on the Sterling strawberry, in former issues, especially those very delicious ones you have so much enjoyed at friend Terry's, and then have you in your July 1st issue announce that you had concluded to drop it from your list, and would reinstate a former *discarded* variety which had about all the good points of the Sterling. It would look as though the Sterling wasn't much of a berry after all, even though you had so praised Mrs. Terry's canned ones. Perhaps others, like myself, have been influenced by the praise you formerly bestowed on Mrs. Terry's canned Sterlings, and concluded that it was the berry for them to plant. How is it, friend Root — were you deceived, or were you almost too lavish of your praise? A. D. P. Young.

Ashtabula, O., July 16.

I hardly feel like pleading guilty to either charge, friend Y. The Sterling is an excellent berry, and it seems like parting with one of my children, almost, to give it up; but there are altogether too many strawberries recommended. I saw a catalog recently where one man offered something like 100 different varieties. It is trespassing on good nature and on a suffering public to inflict so many on them, even if all are good. Matthew Crawford originated the Sterling a good many years ago. It gave considerable promise, and he sold it for quite a little sum of money. Either it did not seem to please generally, or else the new owner did not push it; because, for some reason or other, it fell back out of sight. But Terry got hold of it; and as it suited him exactly for a berry to can, he gave it prominence. After our strawberry-book was out I discovered that this berry was very little known; and I also found that it was in many respects much like the Warfield. The latter is generally known and widely disseminated; and after I had dropped it I discovered that it seemed to be a general favorite all over the land, although, as E. C. Green told me to-day (we were out on a wheel-ride together, looking at the nice gardens and farms of Medina County), the Warfield does not seem to do its best every year. Now, the point is this: The Warfield is already well known, and is in the hands of most of the strawberry-growers. This is true to such an extent that the Ohio Experiment Station, in a recent bulletin where they gave a list of old sorts to be recommended, mentioned the Warfield *first of all!* In view of this, I think it was unwise to drop it. Now, as the Sterling has hardly been introduced, and is very little known, was it not wise on my part to make the exchange I did? By the way, I should be very glad indeed to get a report from those who have purchased Sterlings. It is too sour a berry for most people, unless they want one specially for canning; and it is not nearly as productive, if I am correct, as the Warfield. I may add this much in its favor: While visiting at Mr. L. B. Pierce's I asked him what he thought of the Sterling; and, if I remember correctly, he said it was one of the best berries in the world; and then he showed me a row of them, larger and finer than any I have ever grown on my own ground, up at one side of that strawberry-patch, on the edge of the woods. We *must* sift our great number of varieties, and choose a few of the best. Of course, anybody who has a special fancy for it can hold on to it as long as he chooses. Let me quote what the Ohio Experiment Station says in regard to old varieties:

"The best of the old varieties are Warfield, Bubach, Crescent, and Haverland; and no variety seems to have been found that is likely to supersede them."

THE TIMBRELL STRAWBERRY.

In my recent review of strawberries, after it was in print I feared I had been a little too severe on the Timbrell. A report from our good friend Crawford, of Cuyahoga Falls, gives an explanation to the white tip during this present season; and as there are several other valuable points, we give the report below:

> It has fruited here twice, and I am glad to report that the plant is all that can be desired for health, vigor, and productiveness; and it is certainly the latest of all so far. The fruit is very large, usually of good shape, and of excellent flavor. This season it failed to ripen uniformly with me, remaining white on the under side when red above. I think this was owing mainly to the extreme heat, and perhaps in some measure to the fact that the soil was sandy, and no mulch was applied. A grower a few miles from here says that his colored up all right. In this connection it is but fair to say that the fruit is of fine quality before it colors all over.
>
> I have received reports from various quarters, extending over a wide area, and some of them place it at the head of the list. A correspondent in Colorado tells of ten berries that made a heaping quart, and weighed 21 ounces. Another in New Jersey, who has had it several years, considers it the most valuable variety ever introduced.

We also extract from friend Crawford's July report the following excellent suggestions in regard to planting strawberries generally, in the fall:

FALL PLANTING.

> The soil for strawberries should always be rich, and this is especially necessary for fall-set plants, as they can not send their roots to a great distance in search of food in the short time in which they have to grow. Old, well decomposed stable manure is excellent, and plenty of it should be used. It is well to apply it after the land is plowed, and then harrow it until the horses have stepped on every square foot. If the bed be small, the manure can be worked in with the hoe. The soil should be made firm before the plants are set. This will help keep them from being thrown out by the frost. If one is planting a large patch, which is seldom done in the fall, it is well to roll the soil. This not only makes the bed firm and smooth, but also enables one to see just where the surface is, and to set the plants at the proper depth. In planting a small bed, my plan is, to stretch the line where the row is to be, and spat it down with the back of a spade. This gives a smooth surface, with the impression of the line for a guide. If the soil be dry, I cover the surface around the plants with a mulch of some kind, and give one thorough watering. An excellent plan is to cut some grass when it s short and green, and scatter it all over the plants. This gives them shade just when they need it; and as the grass dries up they become strong enough to do without shade.

AN ONION ITEM FOR MR. ROOT.

My potato onions, which were badly frozen at Easter, made a very good crop, and, besides, made an effort upward as well; to wit, four or five of the sets sent up stalks, each bearing about five little onions. Though I have grown the potato onions a good many years, this is the first instance of that kind that has occurred, or that I know of. In each case it was one of a bunch of sets, and not a large onion, that did this. These little top onions were not ripe when I had to take up the onions; but I am sorry that I did not try to ripen them and see what they would produce, as I may never have another chance. M. S. Percival.

Rugby, Tenn.

[Friend P., I have never seen the potato onion nor a multiplier send up a seedstalk; and I have been glad to think that we have one variety that we could feel sure would not bother in that way; therefore I do not believe I would encourage very much such a heterodox proceeding. Our white-top onion-sets, a few of them. sent up seed-stalks and produced sets. Whether it was the large-sized ones that did this or not, I can not tell.]

SPECIAL NOTICES FROM BUSINESS MANAGER

DOVETAILED CHAFF HIVE.

In Trade Notes for July 15 we described this hive with the new deep telescope cover overlapping the rim. Some may want to secure these hives to put their bees in for winter. The price of the hive-body and telescope cover, without any inside furniture or chaff to pack with, in flat, including nails to nail up with, in lots of 5 or more, $1.00 each—30 cents for the cover and 70 for the hive without cover. In next issue we will give a new list of prices on these hives and others, including inside furniture. Less than 5, add 15 cents each extra; and if nailed, painted, and chaff-packed, add 50 cents each.

DOVETAILED WINTER CASES.

These are shown on page 24 of our catalog. They consist of a body 17x23 inches inside, 11¼ deep, with padded sticks for the lower edge—a large telescope cover about 7 inches deep overlapping the body. This gives ample room for packing and cushion. Price of these cases complete, in flat, including nails to nail them up, 65 cts. each; lots of 10, $6.00. Nailed and painted, 15c each extra, in same quantities. These cases, while designed especially for the 8-frame Dovetailed hive, are plenty large enough to go over a 10-frame L. hive of any style which does not have a portico or other similar projection from the outside.

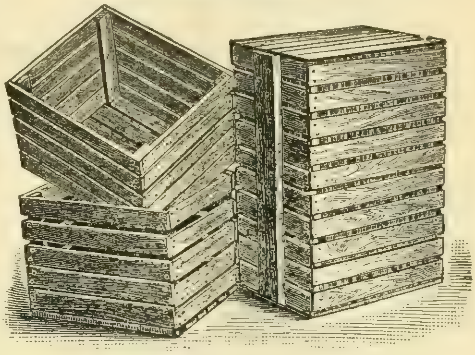
60-LB. SQUARE TIN CANS.

We are prepared to furnish these from St. Louis, Mo., Conneaut, O., or from here, at 75c per box of 2 cans, with 1½-inch screws; $7.00 for 10 boxes. Lots of 50 or more boxes at 65c. The same can, with a 4 inch cap in addition, 10c per box extra. Packed one can in a box, at 50c per box; $4.20 for 10, or 40c each in lots of 50 or more; 5c extra if the 4-inch cap is wanted. Screw-cap honey-gates, to fit 1½-inch cap, for regulating the flow of honey from these cans, 15c each If you order these gates at a different time from the cans, send a cap like the one you want to fit; or say when and where you got the cans. The screw caps vary a little in size from different factories.

STRAWBERRY-PLANTS IN AUGUST.

We are now prepared to furnish Jessie, Parker Earle, Michel's Early, Bubach, Edgar Queen, and Haverland, at the uniform price of 15 cts. for 10; 75 cts. per 100, or $6.00 per 1000. If wanted by mail, add 5 cts. for 10, or 25 cts. per 100. for postage. Postage to Canada will be double the above prices. The first three are perfect varieties; the remaining four are imperfect. Michel's Early we recommend as a fertilizer for all of the extra early varieties We can also furnish Timbrell, nice strong plants, at three times the above prices. The Timbrell is also imperfect; and were it not for the fact of its mottled appearance on the tip when it is ripe, it would probably be one of the leading strawberries of the present time. Another season may decide how much of an objection this is to the plant. Those who have not had experience in fall planting, had, perhaps, better order a few at a time, until they are sure they can make them grow. We feel certain that fall planting—that is, the plan of putting in strawberries on all your rich ground as soon as it is vacated—is getting to be more and more of a success; for we are filling orders, not only for tens, but for hundreds, and, with some, for thousands of plants, to be put out in the hot months of July and August. Of course, during a severe drouth you will have to water them a little when first put out; or practice on a few at a time until you know just what is necessary to make them live, and then plant more largely as you gain experience. Our experience is, that, if you are going to plant in the fall at all, the sooner you can get your plants started, the better. Not only every month but every week counts. Strawberries are a hardy plant; and the cool weather of fall, even clear up into October and November, seems to be the most favorable time for growth.

BUSHEL BOXES.



The above cut shows our popular *all-slatted bushel box.* We have two other styles; one has slatted bottom and sides with solid ends in three pieces called the *slatted bushel box.* The other has solid ends and close bottom and sides, and is bound with galvanized iron and called the *galvanized bound box.* These boxes were devised by T. B. Terry for handling potatoes, for which purpose nothing could be handier. The potatoes are picked up into the boxes in the field and left in them till sold. Other crops, such as cucumbers, tomatoes, and apples are being handled in these same boxes. They are of such a size that two go crosswise in an ordinary wagon-box. Outside measure is 14¼x16⅞x12½ deep, and they hold a bushel of potatoes level full so they can be piled one upon another. The above cut shows two *all-slatted* boxes nailed up, and a bundle of 15 alongside; 13 of the 15 are in the flat, packed inside the other two, and nails of the proper kinds are included. The *slatted* and *galvanized bound* boxes are put up in the same way, except there are only 12 in a package instead of 15. Each package weighs about 85 to 90 lbs.

PRICE LIST.

All-slatted bushel box, per crate of 15........	$1 50
Slatted bushel box, per crate of 12................	1 50
Galvanized bound bushel box, per crate of 12....	2 10

In lots of ten crates, 5 per cent discount will be deducted. Price each, nailed, 15, 18, and 22 cents, respectively. A 20-page pamphlet called Handling Farm Produce, telling all about these boxes, mailed free on application.

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS beats them all for advertising.
Bristol, Vt., June 21. A. E. MANUM.

I am using your make of hives and sections this season. They are the best and finest I ever saw.
Orchard, Col., July 26. J. W. HACKNEY.

Over a year ago I purchased a 7 drawer sewing-machine from you, and it has been in use ever since; and I wish to say that we are pleased with it. My wife says she can not recommend it too highly, and can cheerfully recommend it to any one wishing a first-class machine at a moderate price. I can say the same about the mower.
Northville, Mich., July 7. SAMUEL WILKINSON.

Queens! Queens!

Now ready by return mail.

Bred in full colonies from the best honey-gathering strains in the country. All queens warranted purely mated, and safe arrival guaranteed. I have three distinct strains—golden yellow and dark leather-colored Italians, also Albinos.

Tested, each	$1.50
Tested, per ½ doz	7.50
Warranted, each	.75
Warranted, per ½ doz	4.00
Warranted, per doz.	7.50

Send for 44-page descriptive catalogue.

W. W. CARY, Colrain, Mass.

5-Banded Untested Italian Queens

For the balance of the season at 50 cts.; tested, $1.00; breeding-queens, *the very best*, $1.50. These are Doolittle's strain, and are golden beauties. Fine tested, from imported Italian mothers, 75c. Safe delivery. Money-order office, Decatur.

Cleveland Bros., Stamper, Newton Co., Miss.

Will you please mention GLEANINGS?

STRONG, FULL COLONIES

of Pure Italian Bees, in Root's new Dovetailed hive, after June 1, only $4.00 each.

N. A. KNAPP, Rochester, Lorain Co., O.

Bees and Queens.

I am now prepared to fill all orders on short notice at the following low prices:

Untested queen	$ 75
6 untested	4 00
1 1-frame nucleus.	1 00
1 3-frame nucleus.	2 50
Bees by the pound	75
1 to 5 colonies	6 00

Queens wanted with nucleus, add price.

E. A. HARRIS, No. Petersburg, Renss Co., N. Y.

Tested Queens,

Raised last fall from my choice Italian stock, yellow and unsurpassed workers,

75 cts.

Ready to ship now. Hybrids, 25 cts.

J. A. GREEN, Ottawa, Ill.

World's Fair Medal

Awarded my *Foundation.* Send for *free samples.* Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free* Illustrated Price List of every thing needed in the apiary.

Bell Branch, Mich. M. H. Hunt.

TESTED ITALIAN QUEENS, $1.00 each; Select tested, $1.50; untested, 65 cts. Two-frame nucleus, with tested queen, $2.00; with untested queen, $1 50. Queens ready April 1.

Stewart & Cooper, Quebeck, Tenn.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,

8tfdb New London, Wis.

BBB'S!

If you keep *BEES*, subscribe for the **Progressive Bee-keeper**, a journal devoted to Bees, Honey, and kindred industries. *50 cts. per year.* Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address

LEAHY MFG. CO., HIGGINSVILLE, MO.

Golden Italian Queens.

½ doz. untested queens	$4 00
1 doz. untested queens	8 00
Fine queens for breeding purposes	3 00

Sample of bees upon application. I can please you. Send a trial order.

J. F. MICHAEL,
German, Darke Co., O.

☞In responding to this advertisement mention GLEANINGS.

Mother Bees.

If you wish the best of queens, or mother bees, send me your orders. Untested queens, 3 or 5 band, 75c each; $4.25 for 6, or $8.00 per dozen. Tested 3-band queens, $1.50 each; fine 3-band breeders, thoroughly tested, the *best*, $5.00 each; straight 5-band breeders, faultless queens, $10.00 each. Root's goods, Dadant's foundation, and Bingham smokers.

Jennie Atchley, Beeville, Bee Co., Tex.

☞In responding to this advertisement mention GLEANINGS.

Warranted Queens, 75c.

Five-band strain, bred for *business*, six for $3.25; dozen for $6.00. See former *ads.*, and send for circular. Safe arrival and satisfaction *guaranteed.* **J. B. CASE, Port Orange, Fla.**

☞In responding to this advertisement mention GLEANINGS

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

SPECIAL OFFER FOR THE NEXT 60 DAYS.

Untested 5-banded queens, 50 cts. each; six, $3.00; warranted, each, 60 cts.; six, $3.50; tested, 75 cts. Reference, A. I. Root.

Leininger Bros., Ft. Jennings, O.

☞In responding to this advertisement mention GLEANINGS

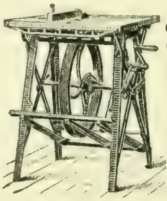
MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.

eiotf Please mention this paper

Square Glass Honey-Jars.

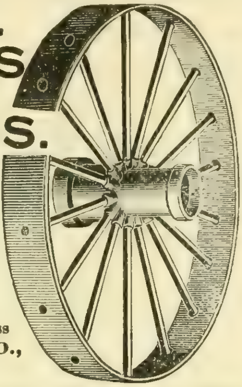
REDUCTION.

Have just received a carload of Honey-jars which we offer at a discount of 5 per cent on all orders of two gross jars or over, and at a discount of 10 per cent on all orders of five gross or over, off list prices. Send for catalog.

CHAS. F. MUTH & SON,

& 978Central Ave., Cincinnati, Ohio.

☞In responding to this advertisement mention GLEANINGS.



METAL WHEELS for your WAGONS.

Any size you want, 20 to 56 in high. Tires 1 to 8 in wide—hubs to fit any axle. **Saves Cost** many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires Catl'g free Address

EMPIRE MFG. CO.,
Quincy, Ill.

☞In responding to this advertisement mention GLEANINGS

✕Promptness is What Counts.✕

Honey-jars, Shipping-cases, and every thing that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping=point in the Country.** Dealer in Honey and Beeswax. Catalog free.

WALTER S. POUDER,

162 Massachusetts Ave., Indianapolis, Ind.

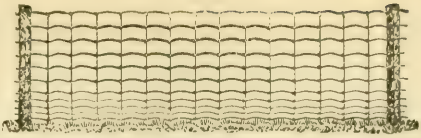
Please mention this paper

Cash for Beeswax!

Will pay 22c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 30c per lb., or 32c for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio



STATE LUNATIC ASYLUM,

AUSTIN, TEXAS, Aug. 3d, 1894.

Page Woven Wire Fence Co., Adrian, Mich.

Gentlemen:—Replying to yours of 21 ult. I beg to inform you that the Tools were shipped to-day. The fence is giving entire satisfaction, and I consider it the best wire fence I have seen. Respectfully,

F. S. WHITE, Supt.

The above testimonial was given after two years trial.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

☞In responding to this advertisement mention GLEANINGS.

Bees and Supplies

Always on hand. Send for circular.

I. J. Stringham, 105 Park Place, N. Y.

☞In responding to this advertisement mention GLEANINGS.

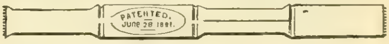
CARNIOLAN QUEENS

We have made arrangements whereby we can furnish Carniolan queens at the same prices as for Italians; viz., untested, during this and the next two months, 75 cts. Select untested, $1.00. Tested, $1 50. Select tested, $2 50. We place our own guarantee upon these queens, and feel sure they will give satisfaction to those who desire the gray Carniolan stock. We are also prepared to furnish untested three-banded Italians and four and five banded queens at the same prices. We will also furnish tested Italian queens of last year's raising at the same price as untested as long as they last. Any of the above-mentioned queens, of the plain untested, or last year's tested, and one new subscription to GLEANINGS, $1.50.

A. I. ROOT, Medina, Ohio.

Do Not Order

Until you have written us for prices on the *"Boss" One-Piece Section.*


PATENTED, JUNE 28 1881.

Also D T. Hives, Shipping-crates, and other supplies.

We have just completed a large addition to our factory, which doubles our floor-room, and therefore we are in better shape than ever to fill orders on short notice. Write for price list.

J. FORNCROOK & CO.,

Watertown, Wis., Jan. 1, 1894. 1-3-5tfd

☞In responding to this advertisement mention GLEANINGS.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

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CONVENTION NOTICES.

The bee-keepers of Utah will hold their semi-annual convention at Salt Lake City, Oct. 4, 1894. J. C. Swaner, Sec.

CHANGE OF DATE — IMPORTANT NOTICE.

In order to let all bee-keepers who can, take advantage of the Harvest Excursion rates which will be given Oct. 9th, we have concluded to change the date of the meeting to Oct. 10th, 11th, 12th. The rate will be half fare plus $2.00. These rates apply east of the Missouri River only. Ask your railroad agent about them. Special rates of 1⅓ fare will no doubt be secured in the territory covered by the Western Passenger Association. These will be announced later, if secured.

St. Joseph, Mo., Aug. 25. E. T. Abbott, Pres.

Agricultural papers will please note the change above.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge. After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

About ten nice yellow mismated Italian queens for sale at 25 cents each, or 5 for $1.00. They are all young and prolific.

W. F. Stuart, Box 439, Ottawa, Kas.

Woodcliff A No. 1.

In order to introduce my strain of beautiful yellow *Woodcliff Queens*, which are bred from an imported leather-colored Italian crossed with the best 5-banded stock I can procure by *Doolittle* method, I will sell *guaranteed* purely mated untested queens at 75 cts. each. As I produce large quantities of comb honey, I breed principally for large honey-gatherers. Apiaries near Philadelphia. Address

WM. A. SELSER, Wyncote, Pa.

Adel Queens and Bees.

A new strain of beautiful yellow-banded bees Queen and **Am. Apiculturist** one year, $1.00.

H. A. LEY, Wenham, Mass.

FOR SALE. THOROUGHBRED ENGLISH BEAGLE HOUNDS.

Best Dogs in the WORLD for Rabbits.

James Andrews, - Red House, N. Y.

FOR SALE, 37 COLONIES OF BEES.

One Hundred Dollars will buy the lot

If taken here. No foul brood. Address

C. E. COOK, Starrville, Mich.

500 YOUNG FERRETS

Now ready to ship at only $3.00 a pair. Price list of Bees and Ferrets free. **N. A. Knapp, Rochester, Lorain Co., O.**

☞In responding to this advertisement mention Gleanings.

CHAS. ISRAEL & BROS., 110 Hudson St., N. Y.

WHOLESALE DEALERS & COMMISSION MERCHANTS. Established 1875.

HONEY —AND— BEESWAX.

LIBERAL ADVANCES MADE ON CONSIGNMENTS.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb and Prompt.

THE VERY BEST GRADES AND WARRANTED TO BE PURE

HONEY

ADDRESS A.I ROOT MEDINA OHIO.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. Green, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
Anthony Opp, Helena, Ark.

WANTED.—To exchange extracted honey, good quality and flavor, for supplies, sections, shipping-crates, etc. Low freight rates.
R. L. Tucker, Wewahitchka, Fla.

WANTED.—To exchange complete Business College outfit, for bee or apiarian supplies.
J. A. Bowen, Hollister, Cal.

WANTED.—By willing young man of twenty-three, employment during the winter or longer, not particular. Best of references. Try me.
Address Wm. J. Manley, Yale, Mich.

WANTED.—An apiary on shares in any Southern State. A. Carper, Hebron, Boone Co., Ky.

WANTED.—A situation to work at bees in Cuba the coming winter; have had experience.
Address R. T. Stinnett,
West Groton, Tompkins Co., N. Y.
Ref., W. L. Coggshall, West Groton, N. Y.

WANTED.—To exchange one electric motor and 8-in. fan and pulleys, valued at $18; seven one-gal. jars and batteries, valued at $21; wires and two small electric lights, valued at $4, for bees, new bee supplies, etc.
Dr. Ball, Moose Meadow, Conn.

WANTED.—To exchange blackberry-plants, for foot-power sawing-machine or bicycle.
E. P. Churchill, Hallowell, Kennebec Co., Me.

WANTED.—To exchange fine young Italian queens for alsike clover seed. Those having seed please write and state price.
Thos. E. Elam, Mulberry Grove, Bond Co., Ill.

A RARE CHANCE! For lung or catarrh trouble, with $2000. Wanted.—To exchange 130 acres of a nice River Front Home, and young orange grove, for the keeping of man and wife, or work.
Address Box 77, Manatee, Fla.

HONEY COLUMN.

CITY MARKETS.

BOSTON.—*Honey.*—Our market remains the same as last month. Light demand and a fair supply. Comb honey in 1-lb. sections, 14@16; extracted, 5@6.

E. E. BLAKE & CO.,
Aug. 20. Boston, Mass.

CLEVELAND.—*Honey.*—Honey is very slow sale at present. No. 1 white is selling at 13; No. 2, 11. Beeswax, 23@25.

WILLIAMS BROS.,
Aug. 18. 80 & 82 Broadway, Cleveland, O.

ST. LOUIS.—*Honey.*—There are no changes to date. Honey is in light demand at former quotations, receipts of new arriving slowly. Prime beeswax, 26

D. G. TUTT GROCER CO.,
Aug. 21. St. Louis, Mo.

KANSAS CITY.—*Honey.*—Receipts very light. Demand for comb improving. We quote No. 1 white 1-lb., 15@16; No. 2, 13@14; No. 1 amber, 14. Extracted, 5@7. Beeswax, 22@25.

HAMBLIN & BEARSS,
Aug. 20. Kansas City, Mo.

ST. LOUIS.—*Honey.*—Choice white-clover honey in 1-lb. sections, 24 to 32 lb. cases, is in fair demand at about 14 cts. per lb. Inferior comb honey not wanted. Extracted honey, as to quality and package, is worth from 3 to 5 cts.—the outside price for choice stock in cans, while inferior goods in barrels are worth from 3@3½, and choice 4@4½. Beeswax is in good demand. Prime stock, 26; grease wax and burnt, half-price. The movement in honey in this market has been very light for the past six months, but if we can rely upon reports from the country, the crop of honey in this section will be very short this season on account of dry weather.

WESTCOTT COM. CO.,
Aug. 20. St. Louis, Mo.

NEW YORK.—*Honey.*—We have had a few inquiries for new comb honey; also some small shipments of new crop. Demand is as yet limited, but we expect a good opening. The weather is too warm yet, and the consumption hardly begun. Prices now ruling would not be a criterion of what they will be when the season has fairly opened. Clover, 1 lb sections, fancy, 14; fair, 12@13; mixed, 10@11. Extracted honey is in better demand for manufacturing purposes. Southern, 50 to 60 cts. per gallon; Northern, 5@7 per lb. Beeswax, 25@28.

CHAS. ISRAEL & BROS.,
Aug. 23. 110 Hudson St., New York, N. Y.

BUFFALO.—*Honey.*—Strictly fancy honey at about 13@14; selling somewhat better. We will advance about 10 per cent per lb. upon several tons of strictly fancy honey for the ensuing season. Common honey is selling all the way lower, as to condition, etc. We can place it to as good advantage as it can be sold anywhere.

BATTERSON & CO.,
Aug. 18. Buffalo, N. Y.

CHICAGO.—*Honey.*—Consignments of comb honey are more frequent, and some little accumulation is noticed. Sales of best grades are made at 15@16. Extracted, 5@7, according to kind and quality. Beeswax, 23@25.

R. A. BURNETT & CO.,
Aug. 18. 163 So. Water St., Chicago, Ill.

MILWAUKEE.—*Honey.*—This market offers as good inducements to shippers of choice honey as any, and the best qualities of either comb or extracted are appreciated. The demand for new in sections is very small now. Extracted is coming to us quite liberally, is of very fine quality, and is meeting quite ready sale. Any one who has choice extracted to sell will please write us, as we buy, and will now quote, for choice white 1-lb. sections, new crop, 15@16. White extracted, in good packages, 7@7½; dark, in good packages, 5@6. Beeswax, 20@25.

A. V. BISHOP & CO.,
Aug. 22. Milwaukee, Wis.

CINCINNATI.—*Honey.*—Demand is slow for all kinds of honey. We quote extracted honey at 4@6 cts. per lb. on arrival. Comb honey at 13@16 for best white. There is a fair demand for beeswax at 20@23 for good to choice yellow.

CHAS. F. MUTH & SON,
Aug. 20. Cincinnati, O.

KANSAS CITY.—*Honey.*—New comb honey is coming in; selling at 15@16 for No. 1 white 1-lb. comb; No. 2, 13@14; No. 1 amber, 12@13; No. 2, 10@12; extracted, 5@7. Beeswax, 22@25.

CLEMONS, MASON & CO.,
Aug 20. Kansas City, Mo.

DETROIT.—*Honey.*—White comb honey, 15@16 cts. in 12-lb. cases No dark offered. Extracted, 6@7. Beeswax, 23@24.

M. H. HUNT,
Aug. 20. Bell Branch, Mich.

ALBANY.—*Honey.*—Receipts as large as usual at this season of the year, but customers are not disposed to buy until a little later in the season, and there is no established market price yet. We think prices will be about the same or a little better than last season. Indications are that the crop will not be as large.

CHAS. MCCULLOCH & CO.,
Aug. 21. 393, 395, & 397 Broadway, Albany, N. Y.

Alfalfa honey, very white, "dead ripe," thick and rich; $8.25 for two 60-lb. cans. Address

OLIVER FOSTER, Las Animas, Colo.
(Late of Mt. Vernon, Iowa.) eoitf

FOR SALE.—Choice white-clover comb honey, 14c; other grades less.

A. P. LAWRENCE,
Hickory Corners, Barry Co., Mich.

WANTED.—Comb and extracted honey. Will pay cash. Make offers and state quantity.

JOS. NYSEWANDER, Des Moines, Ia.

5 tons choice comb honey for sale in 1 and 1¼ lb. sections at 12 and 11 cts. per lb.; 24 sections in each (show) case; good goods in 200-lb. lots, f. o. b.

S. J. SMITH'S APIARY AND STOCK-FARM,
Padelfords, N. Y.

1000 lbs. thick honey, mostly basswood, for sale at 8 cts. here. W. H. S. GROUT, Kennedy, N. Y.

A carload of fine extracted alfalfa honey, well ripened, in 60-lb. square cans, at 7c, f. o. b. cars here. Samples by mail. AIKIN BROS., Loveland, Col.

Comb and extracted honey wanted, in large or small lots. Consignments solicited. Reference, A. I. Root, or Union National Bank, Denver.

R. K. & J. C. FRISBEE, Denver, Col.

4000 lbs. nice extracted honey for sale.

W. C. GATHRIGHT, Cameron, Tex.

FOR SALE.—Alfalfa honey, comb and extracted. Prices to suit the hard times. CHARLES ADAMS,
Greeley, Col.

FOR SALE.—7000 lbs. of fine, ripe, extracted basswood honey, highest offer takes it. Also Italian Bees and Fox-hound pups.

eift ELIAS FOX, Hillsboro, Wis.

WANTED.—To buy quantity lots of white comb and dark extracted honey.

B. WALKER, Evart, Mich.

EDWIN ROBINSON. W. M. GRAY.
ESTABLISHED 1866.

Robinson & Gray,

SUCCESSORS TO

B. F. Southwick & Co.,

Foreign and Domestic Fruits, Canned Goods.

47 & 48 South Market and 5 & 6 Chatham Streets.

Headquarters for Vermont Shipments of White-Clover Honey.

It will be the endeavor of the new firm to meet the wishes of their patrons in the future as the late firm has in the past.

Thanking you for the many past favors received by the late firm, we hope to be favored with a liberal share of your patronage in the future.

All orders and inquiries by mail or otherwise will receive prompt attention. Very respectfully,

Boston, April 2, 1894. ROBINSON & GRAY.

☞ In responding to this advertisement mention GLEANINGS.

Queens by Return Mail.

I am now caring for a large lot of queens by the Atchley plan of giving each queen three unfinished sections of honey and a handful of bees. This keeps the queens fresh and healthy, yet in the best possible condition for shipment, while it enables me to fill orders by **return mail.** One untested queen, 75 cts.; six for $4.00; one tested queen, $1.00; six for $5.00. Any one buying a queen can have the Review one year for 75 cts.

W. Z. HUTCHINSON, Flint, Mich.

$1,000 in PRIZES

Divided into 4 1st prizes of **$150** each, and 4 2d prizes of **$100** each will be given for best designs for

WALL PAPER

Send 2c. for complete detail information. Designs must be entered before Nov. 15, 1894. Designs not awarded prizes will be returned, or bought at private sale.

No matter where you live, don't pay retail prices for wall paper. We make a specialty of the mail order business and sell **direct to consumers at factory prices.**

SPECIAL FALL PRICES: **Good Paper 3c. and up. Gold Paper 4c. and up.**

At these prices you can paper a small room for 50c.

Send 10c for postage on samples of our new fall paper and our book **"How to Paper and Economy in Home Decoration,"** will be sent at once, showing how to get $50 effect for $5 investment. *Send to nearest address.*

ALFRED PEATS, DEPT. 90.

30-32 W. 13th St.,
NEW YORK.

136-138 W. Madison St.,
CHICAGO.

"TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my ***Golden Italians.*** They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. ***Sections, $2. per M.*** Dovetailed hives way down.

CHAS. D. DUVALL. Spencerville. Md.

Italian Queens Cheap.

My queens are as good as the best. Untested, 65c each; 3 for $1.75; 6 for $3.25. Tested, 1.25. Select tested, yellow to the tips, breeders, $1.50. Virgins, 25c. Safe arrival guaranteed.

G. E. DAWSON, CARLISLE, ARK.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's strain of Italians,** the result of 15 years' careful breeding.

Dr. H. B. Lung, Lexington, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious, energetic bees. I must express my admiration for your success as a bee-propagator."

Warranted queens, 80c each; 3 for $2.00. Select Warranted queens, $1.00 each. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 666 queens. Circular free. eitf

J. P. MOORE, Morgan, Pendleton Co., Ky.

☞In responding to this advertisement mention GLEANINGS.

QUEENS.

Tested, $1.00; 6 for $5. Warranted, 75c; 3 for $2. Breeders, the very best, $2.00. Straight 5-band, $3. Also apples, Ben Davis, Mammoth Black Twig, Arkansas Black, all leading varieties; whole root only; trees 10c each. On orders of 100 I will pay freight.

W. H. LAWS, Lavaca, Seb. Co., Ark.

Golden Queens

Untested 65 cts. each; 6 for $3.50; 12 for $6.50. Tested, $1.00 each. Fine prolific breeding queens, $2.50 to $4.00. To parties who have not tried my strain of Italians I will send one golden Italian queen for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

World's Fair Medal

Awarded my ***Foundation.*** Send for ***free samples.*** Dealers, write for wholesale prices. Root's new ***Polished Sections*** and other goods at his prices. ***Free*** Illustrated Price List of every thing needed in the apiary.

Bell Branch, Mich. **M. H. Hunt.**

Sample Copy Free!

Please Cut Out

This whole Advt. Sign, and Mail.

☞ Please send me the American Bee Journal each week for Three Months. At the end of that time I will remit $1.00 for 1 year's subscription, or 25c. in case I decide to discontinue.

To the Publishers of American Bee Journal,

56 Fifth Avenue, CHICAGO, ILL.

*Name*______________________________

*P. O.*______________________________

*State*______________________________

32 Pages, Weekly!

MONEY RETURNED to all buying **PORTER BEE ESCAPES** not satisfied after testing them. Prominent bee-keepers everywhere use and highly recommend them as **the best.** No others received a World's Fair award. Testimonials, etc., free. Prices: Each, postpaid with directions, 20 cts.; per doz., $2.25. Order from your dealer, or the mnfrs., **R. & E. C. PORTER, LEWISTOWN, ILL.**

---

13 Carloads of Supplies.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR
MEDINA OHIO

Vol. XXII. SEPT. 1, 1894. No. 17.

STRAY STRAWS

FROM DR. C. C. MILLER.

"TOP SWARM" is a common name in England for a prime swarm.

MY PERCOLATOR was started running Aug. 9. *Some* of my bees shall be ready for winter.

J. A. GREEN is mentioned in the Chicago papers in connection with a bicycle robbery.

A GOOD PICTURE of Hon. Eugene Secor, as also an article from his pen, appears in *The Midland Monthly*.

THE LIME, or linden, in England, the *B. B. J.* says, is "a precarious and uncertain source of supply at the best."

A HAPPY DISPOSITION, Dr. Peiro says in *A. B. J.*, is one of the best things to dispel disease. I'm going to get one.

SWEET CLOVER seems to have a new use. Mrs. Dunkin, in *A. B. J.*, says it will keep moths out of woolen goods.

QUEENS are quietly superseded after the close of the honey season much oftener than one who never clips his queens would think.

ONE POUND VS. TWO-POUND sections. Replies in *A. B. J.* agree that very little more honey can be obtained in two-pounds than one-pounds.

POLLEN seems to be gathered, not in exact proportion to nectar. My bees have combs empty of honey, but are laying up a good stock of pollen.

SOMETIMES I've had queens lay in worker-combs in sections when there was no excuse for it, but not often enough to make it worth while to use excluders.

MR. EDITOR, please don't let Prof. Cook write any more pieces like that on p. 651. I don't want to become discontented with the place where I'm now living.

EVIDENTLY the editor (see bottom of p. 661) doesn't want to be considered "an ordinary greenhorn around the bees." And yet he'd be mad if you called him an extraordinary one.

DOOLITTLE figures, in *A. B. J.*, that a good queen during her lifetime lays on an average about 729,000 eggs. He had one that averaged more than 4000 daily for two months.

NO, INDEED! You're fooled if you think only beginners read that department of Doolittle's. I don't dare to skip a word of it for fear he gives some kink that I don't know.

PORCHES entirely inclosed with wire cloth are coming into fashion. Make a nice place to sit, free from flies and mosquitoes. Wouldn't it be as good as a bee-tent to manipulate bees?

WHEN COMBS have become old and black, they are not worth melting for wax.—*British B. J.* Wonder if they have real good sun-extractors over there, or doesn't the sun shine enough?

C. A. HATCH thinks that prolificness of queen is of less consequence than vitality of offspring, and that crowding the queen beyond her natural wont, by spreading the brood, may be at the expense of that vitality.

"INSOMNIA," says Dr. Peiro, "sounds very distinguished; but when a person can not enjoy good rest there is usually something the matter not exactly to his credit." I don't think much of York's doctor.

THE RUSSIAN CHURCH, backed by the government, has decreed that hereafter only pure beeswax shall be used in church candles. That means a higher price for foundation, for enormous quantities of candles are used.

THE YOUNG QUEEN, says Trœtzmueller in *Bienen-Vater*, at 3 days old, comes to the entrance and takes a look around without flying. Next day she takes a flight to mark the location. Not till the following day does she fly to meet the drone.

MRS. ATCHLEY says, in *A. B. J.*, that if ever Doolittle and I get non-swarming bees they're likely to be worthless. Now I know what's the matter with my honey crop this year. My bees haven't swarmed once, and so I haven't got any honey.

TO A QUESTION in *A. B. J.*, the veterans reply almost unanimously that bees secrete wax when fed on sugar syrup about as well as when fed on honey. That doesn't agree very well with the theory that bees get wax directly from the outside covering of pollen.

To stop a felon, stick the finger into a bottle of tincture of iodine for a minute, night and morning, and begin as soon as you hurt yourself.—*Dr. Peiro, in A. B. J.* Scalding hot water's good too.

That doctrine, "where bees commence to store, there they will continue," is sometimes crowded too far. Don't bees *always* commence storing in the brood-chamber? Did you ever know them to store in sections with *no* honey in the brood-combs?

That Texas story about finding honey in a petrified tree has crossed the sea, and that stubborn German, Reepen, refuses to credit it because petrifaction takes thousands of years, and bees have been here only 200 years. The idea of objecting for a little thing like that!

Theory is one thing, practice sometimes another. A worker cell is ⅕ of an inch across, so I thought that, by cutting out a strip of foundation ⅕ of an inch wide the cut parts would just fit together. Actually measuring, I find it requires a strip nearly twice as wide—.355 of an inch.

Lock your bicycle when leaving it standing. A regular system of bicycle robberies is being carried on. The thief mounts a bicycle standing on the sidewalk, or hires one for a short time from an agent, runs to the next station and ships it to Chicago, then disappears. J. A. Green was victimized, as mentioned above, but got back his wheel.

Dandruff comes from irritation by sharp-toothed combs. To cure, apply vaseline, best with a sponge, every third day for about four times. Men use a brush, women a wide-tooth comb ground very dull. When dandruff is pretty well gone, wash head daily in clear cold water, and rub scalp briskly with finger-ends, *not nails.—Dr. Peiro in A. B. J.*

GENERAL CORRESPONDENCE

THE NORTH AMERICAN.

THE OLD QUESTION OF AFFILIATION; HOW A LARGE ATTENDANCE MAY BE SECURED AT THE NEXT MEETING.

By Pres. E. T. Abbott.

The articles of incorporation of this Association (which it would not be a bad idea for all the bee-papers to publish in full), adopted at Keokuk, say: "This Association shall consist of its officers, life-members, delegates from affiliated local associations, and ex-presidents." They then set forth the conditions on which bee-keepers may become life and annual members, and say that "delegates from affiliated local associations shall be admitted free." It is further stated that any "State, District, Territory, or Province in North America may become affiliated upon the annual payment of $5.00, which shall be due on the first day of January in each year, in advance."

I should like to learn how many there are of these "affiliated" associations at the present time. I see a list of eight is given in the report of the meeting at Keokuk; but I find nothing in the last annual report to indicate that there were any "affiliated" associations at that time. If not, why not? Then, again, what benefit is to be derived from becoming "affiliated"? These are merely questions thrown out to provoke an expression of opinion, if possible, on the part of our leading bee-keepers.

It is a truth which no one can gainsay, that it is human nature not to remain "affiliated" very long when no benefit of any kind is to be derived from the affiliation. I can see how every individual who attends a meeting of the North American can be greatly benefited; but I confess I do not see where the benefit is to accrue to those who are only "affiliated" and never attend any of the meetings. It seems to me that it ought to be possible to identify the interest of all local societies more closely than they are at present with that of the national. I do not know just how this can be done; but I want to suggest a plan by which I think it could be brought about at our next meeting in October. I should like very much to see this the largest meeting that was ever held in the interest of apiculture on this continent. This can be done with very little effort, if we all set about it at once in the right way.

I would suggest, first, that every county in the United States, where there is a sufficient number of bee-keepers, organize at once a local society. Let each member pay in a fee of 50 cts., and then proceed to elect a delegate to the North American, and equip him with money enough to pay his expenses, and the $1.00 for the annual membership-fee. Discuss thoroughly what you would like to have him present to the North American, and send him out instructed to vote every time for the thing that comes nearest representing what the local society desires. As part pay for the benefit this delegate is to derive personally from attending the North American, he should be required to write up fully the entire trip and the doings of the North American, and present this to the next meeting of the local society. Our Canadian friends should do the same in every province in Canada. In this way we could secure a very large attendance and create sufficient enthusiasm to put the North American in a way to be a power in the land. What say you? What county or province will be the first to respond to this proposition?

I am making local arrangements for a big crowd and a good time generally. The Commercial Club, of the city, has come to the front and tendered me the use of their rooms in which to hold our meetings, and they are doing all they can to help secure reduced rates on the railroads. Just as soon as the matter of rates is settled, it will be published; but I trust no one will wait for this before making up his or her mind to come. The Commercial Club has one of the finest rooms in the city, centrally located, and near to good hotels which have made me liberal rates for our meeting.

We have been promised papers from some of the leading bee-keepers of the world. Mr. Benton is working hard to prepare a good program—one that will be both entertaining and profitable. Dr. Miller, and a host of others who are a whole convention in themselves, will be here, and the meeting can not fail to be beneficial to all who may attend. If you have but one colony, come and learn how to care for more.

Friend Stilson struck the right key in the last *Nebraska Bee-keeper*. He says, "Let's make up a carload or more and start from Lincoln." That's the way to talk. Come on with your carloads, and this city of the "wild and woolly West" will try to do her part.

I have received a number of letters and cards from those who expect to be here, but still there is room for more. Let them come, and come fast! Every one counts, and helps to swell the swarm of bee-keepers that will be buzzing in the air in our fair city Oct. 16, 17, and 18, 1894. We will furnish the hive if the people will only swarm.

St. Joseph, Mo.

[The present constitution of the North American was drawn up by Thomas G. Newman as chairman of a committee appointed for that purpose; and, if we are correct, it was modeled by him after the constitution of the very successful national association in England. The instrument was adopted without discussion at the meeting in Columbus, O., somewhat to the disappointment of Mr. Newman, who felt that so important a matter as a constitution should be carefully gone over in open convention before actual adoption. But we all thought then, that what had been a working success in England ought to be largely so in the United States; but we did not then contemplate the vast area of our own land compared with that of the mother country; and while it was quite feasible and possible to send delegates from affiliated associations to the national association, in Great Britain, it was an altogether different matter in the United States. Bee-keepers, in order to attend their national association, are obliged to go 100 miles here where those in England go one to attend their own; hence many of the advantages that would accrue from affiliation proved in the light of the past to be almost a dead letter in this country. For instance, one benefit to an affiliated society was in sending a delegate, said delegate having the privilege of a vote; but the affiliated association, besides paying the $5.00 fee, found it to be quite a burden to pay this amount on top of the delegate's traveling expenses. Another benefit was the awarding of medals on the part of the North American, on honey exhibited by a member or members of an affiliated association, and at the same time the appointment of a judge. But here, again, the large mileage prevented the judge from making his appearance. Indeed, we can not remember whether a judge was ever appointed.

These matters have been brought up before; and it would seem that the constitution should be amended, making fees for affiliation at a nominal sum of, say, 50 cts. or $1.00; and that the benefits that are supposed to accrue from affiliation, and are inoperative, either be stricken out, or so modified in the constitution as not to be a dead letter.

We are heartily in accord with Pres. Abbott's scheme for securing a large attendance; but somehow our faith is not very strong that such attendance will be secured this year. The scheme is all right, and we sincerely hope the various associations will avail themselves of the plan.

All other national associations are in some way connected with local associations; and it is usually customary for the latter to pay the expenses of a delegate to the national meeting. This would secure, as Mr. Abbott points out, a large attendance at the national meeting; would divide the expense, and a *good* delegate would bring back plenty of enthusiasm and lots of information to the members of his local association. Here, indeed, would be substantial benefit; and, with only a nominal sum as an affiliation-fee, there would be a large number of affiliated societies, and a good representation at the meetings of the N. A. B. K. A.

We are glad Pres. Abbott has brought this subject up, and hope it may be further discussed, and particularly would we like to hear from Bro. Thos. G. Newman.—ED.]

RAMBLE 115.

AT M'INTYRE'S, ETC.

By Rambler.

About noon, one balmy day in June, the meditations of friend J. F. McIntyre, of Fillmore, were interrupted by the Rambler suddenly appearing before the gentleman's study-window, where he was busy writing or studying the bug and scale, I forget which. He was evidently surprised a trifle, and Mrs. McIntyre evidently shared the same feeling as she advanced from a rear room.

I had left Mr. Wilder in the road beyond the barn, with our outfit, while I prospected ahead. Mr. and Mrs. McIntyre opened their door wide, and invited me in; but I said, "Oh, no! you must come out here and see what an outfit I have. I am but a small portion of it." It just happened that, while I was at the house conversing with Mr. and Mrs. McIntyre, a wagon drove up to the big gate beyond the house, and eight large healthy women of various ages disembarked and came marching through the gate just in time to meet us. Mrs. McIntyre had been advising the Rambler, on various occasions in the past, in relation to the loneliness of the bachelor life; and now to meet eight women, and be in danger of having them mistaken for my outfit, was a little too much. I frantically shouted to Mr. Wilder to drive in, and that explained what our real outfit consisted of, and no women aboard of it. I found that, during the two and a half years that had elapsed since my visit to the Sespe bee-ranch, there had been many improvements. The pepper-trees up the Sespe Avenue had grown to good height. New orchards have been planted, and new and elegant residences built. new oil-wells sunk, and prosperity seemed to smile upon the good people of Fillmore.

MR. AND MRS. M'INTYRE AND FAMILY.

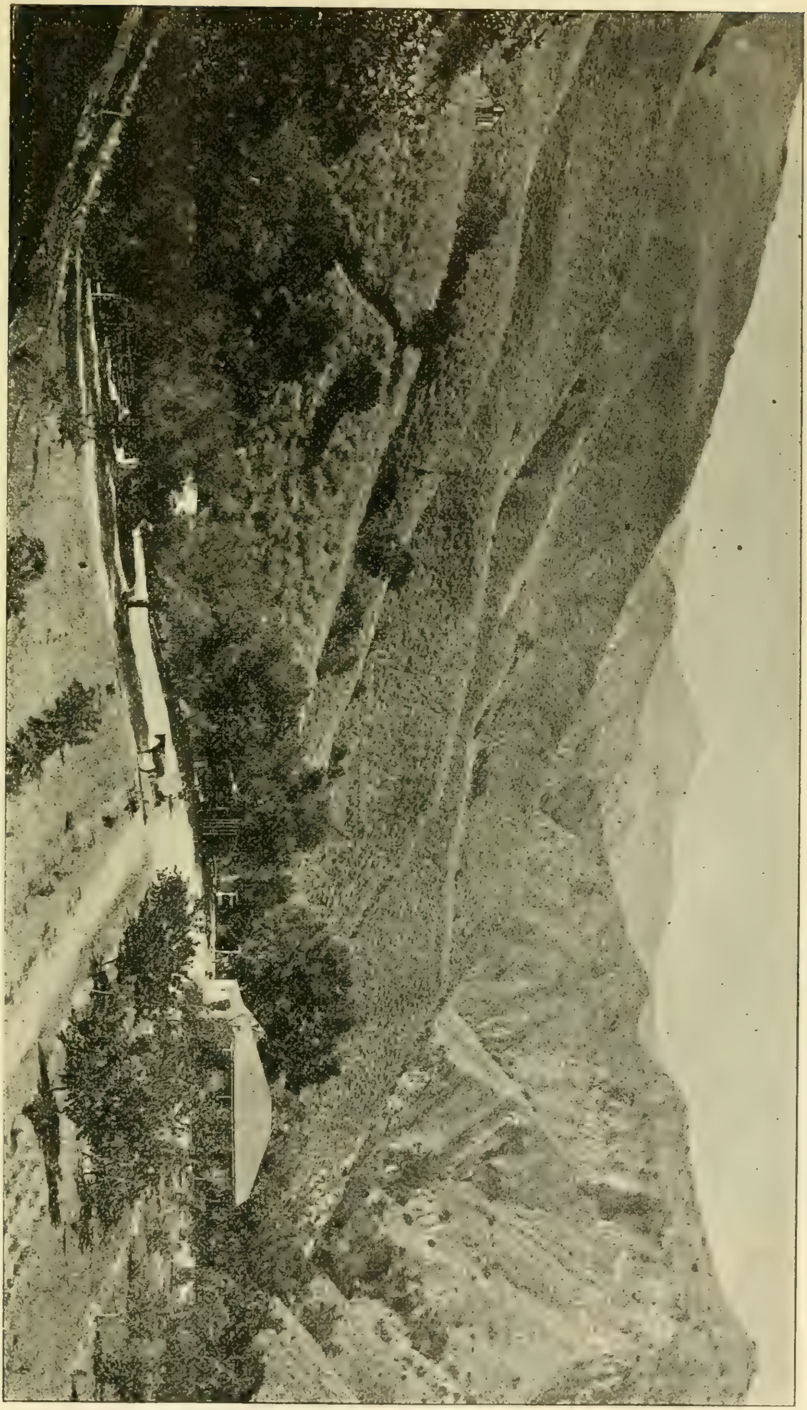
The Sespe apiary seemed to be in a flourishing condition. The orange-trees were loaded with fruit, which was being disposed of to various customers who called for it (that is what the outfit of eight women were after). The various other fruits on the place were getting ready for the harvest. The only unproductive thing this year was the apiary, and a feeder now and then on a hive showed that there were some colonies that were getting short of stores; but our friend hoped that the apiary would pull through without a general feeding. Mr. McIntyre still has a greater portion of his last season's crop all packed in a new fire-proof honey-storehouse. The dread of fire and the cost of insurance are banished, and the precious sweets that cost so much toil from both man and bee are safe. Mr. McIntyre's home sales of honey are quite large. His reputation for a good article leads many small dealers to place their orders with him.

The honey-extractor devised by Mr. McIntyre, and described in a past issue of Gleanings, has done its work well, the little water-motor causing it to spin like a top, and save much hard labor.

The great honey-plant of this region is the purple sage. It differs from the common black sage in having larger bolls, and the foliage is nearly white, while the black sage is dark green. The purple sage covers the great mountains to their very tips; but without rain there is no honey nor fragrance to call the honey-bee to its accustomed task. We found that the disease recently spoken of by Prof. Cook, and which in some respects resembles foul brood, has been known here for some time, and is not considered a dangerous disease. Bee-paralysis is quite troublesome in some apiaries, and Mr. McIntyre attributes it in a measure to the colony getting weakened at some period in the winter, so that the queen gets slightly chilled. Uniting an affected colony with a strong one, and thus warming them up, usually cured the disease. Bees kept in shady or moist places were also more affected than in sunny locations. Experiments in this line are worthy of trial. From accounts of the widespread prevalence of the disease, and its virulence in some localties, it would be well for apiarists to note the condition of their colonies in the early spring months, when cool nights are prevalent.

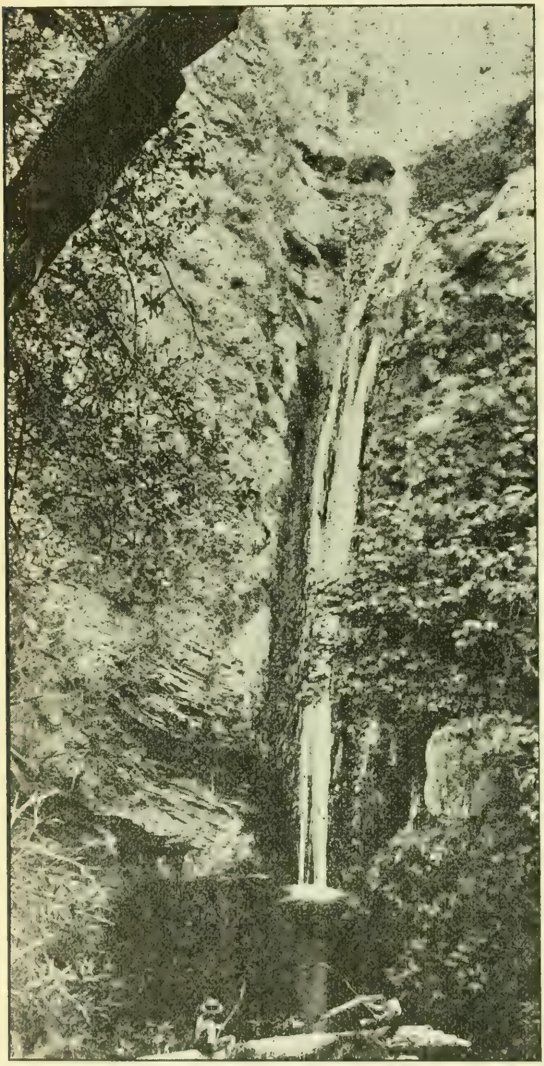
The next day after our arrival we attached our ponies to Mr. McIntyre's family wagon, and Mr. and Mrs. McIntyre and the four girls, with Mr. Wilder and myself, made a lively picnic load. We all journeyed up the Pole Creek Canyon to the residence of T. F. Arundell, another of the noted bee-keepers of Fillmore. It would delight any reader of Gleanings to make the trip here, as well as in the Sespe Canyon; for a like boldness of the scenery is most inspiring. As we wind along from the mouth toward the tail end of the canyon, finally, after a sharp climb, we find ourselves at the residence of our friend, which is sublimely located upon a little mesa, right among the towering mountains. The photo will give the reader a very good idea of the situation of mountain after mountain, canyon and precipice commingled Although Mr. Arundell has the usual sized farm of 160 acres, or thereabouts, his stock has the range of all of those vast mountains; and though some of the pasture-lands hang up edgewise, like a picture upon the wall, Mr. Arundell and his boys and his 36 horses can climb them as nimbly as a deer. These alpine climbs give great expansion to the lungs, and sickness is unknown in the Arundell family; and when all together there is quite a swarm of youngsters clustering around the parents—four boys and two girls. The two older boys mount the old pet horse, and dash down the steep winding grades of the canyon, at a rate that would make an ordinary fellow's head swim. The cows are hunted. The musical ding-dong of the cowbell directs them to the herd, and they are soon in the corral near the house.

Pole Creek Canyon is so named from the number of tall sycamore poles found there. Owing to the perpendicular and even overhanging sides of the canyon, trees have to



MOUNTAIN RESIDENCE AND APIARY OF T. F. ARUNDEL, FILLMORE, CAL.

grow to a great height in order to get much of the sunlight. The same waterfall, over 60 feet in height, which Mr. Root described some two and a half years ago, still plunges down, and is forming fossil leaves, etc., by depositing mineral matter from its impregnated waters. There is water running, even in a dry season, to run a dynamo, and Mr. Arundell is studying the mechanics of changing his water power into electric energy; and we have no doubt his house will be electrically lighted, and the honey-extractor run by the same power, ere long. The steepness of the grades upon Mr. Arundell's ranch necessitates much sled work in getting the various products to the vicinity of the house. The honey-house can be discerned in the upper left side of the photo, and here is located the home apiary. In the honey-house, at the time of our visit, there was stored 12 tons of the 1894 crop. This, in proper time, will have to be sledded down the steep grade that ends near the house. Besides the home apiary there are two out-apiaries, located in excellent honey-districts. The bees in the home apiary were working vigorously upon the various plants in the canyon. A peculiar bush, called the coffee-berry, was in profuse bloom, and the bees were reveling upon the blossoms. There was a prospect, however, that the bees would require feeding before the dry season comes to an end.



WATERFALL, POLE CREEK CANYON.

Mr. Arundell called our attention to his seven-ton tank; also to a large quantity of jumped wax. All the cappings, and odds and ends of comb in the apiaries, are put into a large can, and compressed into the smallest possible space by jumping it down with the feet. It becomes so solid that it is miller-proof. Mr. A. uses a yucca brush; but instead of those little affairs that seem to content some bee-keepers he uses a brush long enough to brush the whole side of an L. comb with one sweep. Several pieces of yucca are placed between two wooden strips. Wire nails were driven through and clinched, holding the yucca, and a brush of any length can be made. Mr. Wilder makes the same sort of brush, but uses manilla rope instead of yucca.

In speaking of these almost inaccessible mountains, and the desirability of establishing apiaries even further back in them, Mr. A. cited an instance of a donkey apiary; i. e., the only way to get to it was over a donkey-trail. The bee-keeper operating it would load sixteen donkeys with the sweet product, and drive them out to civilization.

Deer are found quite plentifully in the mountains; but, as shown in the half-tone, it is something of a laborious task to hunt them. A hunter brought out some fine venison and wanted thirty cents a pound for it. The purchaser demurred. "The price is too steep," said he. "Steep!" said the hunter, "why, sir, the price is not half as steep as the place where I shot the deer."

A hint in relation to deer-hunting was enough to hold Mr. Wilder over another day. An early morning hunt was indulged in; and the result of a long and arduous climb was only a futile shot at long range. The Rambler prefers to hunt rabbits and quail. There is more certainty of game, and less steepness to it.

After several days with our friends we started upon our journey; and it seemed so much like leaving home again that we resolved to stop not so long again. As we hauled out of Fillmore we mutually exclaimed, "May the shadows of the McIntyres and Arundells never grow less!" As between the two there are ten children, there is not much danger of lessening shadows.

THE REPORT OF THE ONTARIO BEE-KEEPERS' ASSOCIATION.

ROBBING SICK PEOPLE, AGAIN.

By Allen Pringle.

Mr. Root:—In the August 1st issue of GLEANINGS, notice is made of the Annual Report of the Ontario Bee-keepers' Association; and in looking it over you were "struck at once with the evident fullness and correctness of the report." Allow me to say here, that, at our last meeting, we made a new departure in order to secure a full and correct report of our annual meeting. We engaged a professional stenographer to take a verbatim report of the whole proceedings. The credit of that move is due Mr. R. McKnight, of Owen Sound, who argued that, as our association is under the patronage of the Ontario Government, we ought at least to present a full and creditable report for publication. The writer seconded Mr. McKnight in this, and the meeting sanctioned it. It seems to me that the North American and other important apiarian associations might profit by this precedent.

Before closing this note, allow me, Mr. Editor, to fully indorse what you say in the same issue, under the head of "Robbing Sick People—Science and Superstition." If you *will* devote a portion of your journal to extraneous subjects (and you have a perfect right to, so long as you duly announce it on your title-page), that is a kind of preaching of exceeding value and vital importance to such of your readers as need it; and the great majority of people everywhere need such admonition and instruction. What still further enhances the value of the exposé is the fact that, as nearly the whole newspaper press, without exception (religious as well as secular), and also, I am sorry to say, the agricultural and other journals, hold their columns open to be bought by these conscienceless frauds and sharks, the same columns are shut against the exposé of the evil. And this is really one of the greatest evils of modern civilization. To think that, for the sake of the almighty dollar, the press of the country (yours, ours, and others') will knowingly allow the leeches and vampires of society to thus prey upon the ignorance and credulity of the people! As an individual I can not withhold my thanks from you for your brave and timely condemnation of the gigantic evil. Why, the thing is coming to such a pass that you can not open a paper without being confronted on every page of it (editorial, business, news, etc.), with the flaming falsehoods of these mountebanks who artfully resort to every device and trick to catch the attention of the reader, and rake in the hard-earned money of the poor, the sick, and the unfortunate.

Selby, Ontario.

[As we stated editorially, the report bore evidence of having been fully and accurately reported. We wish that the North American had funds enough so that its reports might be prepared in a similar way. It is much more satisfactory to condense afterward from a full stenographic report made on the spot than to try to get down in longhand all the good things that were said and done. As it is, there are apt to be many important omissions, and sometimes a little coloring favoring certain views. If the North American could have the funds of the Illinois State Bee-keepers' Association, or those of the Ontario, it could do many things that it can not do now.

We are glad to place the credit of that excellent report upon the right persons, and therefore accept the correction.

If more of our religious and agricultural papers would look less to the dollars and cents, and more to the greatest good to the greatest number, they would be more careful about accepting certain lines of advertisements.—ED.]

THOSE CALIFORNIA HONEY-YIELDS, AGAIN.

WHAT AN OLD CALIFORNIA VETERAN HAS TO SAY OF THEM.

By R. Wilkin.

I am quite in sympathy with the statements of W. G. Hewes, in GLEANINGS of May 1, regarding the average yield of bees in California. I refer, as I think he does, to Southern, not Middle or Northern, California. Only when he spoke of prevaricators among the sage rush, by which, of course, he meant bee-keepers being as plentiful as ticks, I felt like saying, "Not so fast, friend Hewes." But when I reflected that, in all my ramblings among the brush, I had very rarely got a tick on me, I concluded he was right. He only meant that they were very scarce.

At the State bee-keepers' convention at Los Angeles last winter it was interesting to observe how Prof. Cook's eyes brightened up as the best of evidence, the personal reports for a series of years by good bee-keepers, came in thick and fast, corroborating his already high estimate of California's possibilities. Of course, Martin and others caught the enthusiasm; for who is it that does not like to hear of grand successes? My own pride in our State, and in my own reputation as a successful bee-keeper, prevented my speaking out real loud against the danger of exaggerated notions, and I only modestly remarked that I thought a considerable discount should be allowed from these reports to make them correspond with the actual experience of all.

During my first thirteen years in California, commencing with 1876. I kept a record of the yields of all the leading apiaries in Ventura Co., and found that they averaged about as well as my own, which was 75 pounds to the hive. The next six years, including the present one, for we shall get no honey this year, my apiary averaged only 35 lbs., which reduces the average for the past nineteen years to 62⅓ lbs. per hive, spring count, and extracted honey. So great have our yields been at times, that our expectations will hardly allow us to think the average as low as it is.

Ventura, Cal.

DO BEES TRANSPORT EGGS ?

A COUPLE OF WELL-AUTHENTICATED CASES PROVING THAT THEY DO.

By John Phin.

Editor Gleanings:—In regard to the discussion as to whether or not bees ever transport eggs from one cell to another, it may be well to note that a single well-authenticated case is amply sufficient to prove the positive, but that a hundred well-explained cases on the negative side still leave the question open. In Langstroth's work, "The Hive and Honey-bee," third ed., page 219, we find the following: "I have, in several instances, known them to carry worker eggs into royal cells. Mr. Wagner put some queenless bees, brought from a distance, into empty combs that had lain for two years in his garret. When supplied with brood they raised their queen in this old comb! Mr. Richard Colvin, of Baltimore, and other apiarian friends, have communicated to me instances almost as striking."

This passage I have failed to find in Dadant's book. Unless we impeach Mr. Wagner's veracity, I do not see how this case can be explained. Wagner certainly knew a queen from a drone.

New York, July 24.

[Thanks. We did not think to consult the old Langstroth on the Honey-bee, and are, therefore, obliged to you. Samuel Wagner was one of the keenest and brightest men the bee-keeping world ever knew. No man, except Langstroth and Quinby, did more for the advancement of bee culture in the early days than this same "lamented Wagner." His testimony, together with the facts presented by others more recently, proves conclusively that bees may and do transport eggs.—Ed.]

DO BEES REMOVE EGGS ?

MORE EVIDENCE.

By A. C. Mitchell.

The discussion on the above question is, to say the least, interesting. While Willie Atchley is positively certain they never do, Bro. Golden is equally certain that they do. Strange how widely we differ on matters apicultural! but while we are compelled to rely on circumstantial evidence to the extent that we are in the apiary, and while we view the same things from different standpoints and different lines of work, different beliefs will exist, although we are all equally honest.

Some twelve years ago a visiting bee-keeper told me that hopelessly queenless colonies would frequently steal eggs from other colonies for the purpose of raising a queen. Of course, I regarded the story as fishy; but having at times found queenless colonies with freshly started cells having eggs in them while there was no sign of eggs or brood in any other part of the hive, I decided to test the matter at the first chance, which came in a very few days. As I had, some time previously, divided quite a number of colonies for increase, putting five frames of brood and honey in each hive, and allowing the queenless halves to rear queens, in looking them over about the time the young queens should have commenced laying I found one with three queen-cells started, and with from two to five fresh eggs in each cell, but not an egg or particle of brood in any other part of the hive. Now, instead of giving them a queen or queen-cell, as I had always done before in such cases, I covered the hive up and left them to work out their own destiny. Well, the result was, that, in about 15 days, I found a perfect queen walking over the combs, one cell cut open on the end and the other two on the side, in the regulation way. Not wishing to let one test decide it, and really not wanting to believe it at all, I tested it in the same way, and in the most careful manner the next season, and also the next, making three tests, all with the same results. I then let the matter rest until last season, as I was satisfied; but seeing an editorial in the *Apiculturist*, stating that such a thing never occurred in the world, and that the idea was only the imaginings of a cranky brain. I tested it again with a full colony that had been queenless 28 days, and with the very same result; and that queen is a very fair one, and bosses that same colony to-day. How the eggs got there is the question. I can see no other way for it than that the bees carried them from some other hive.

Now, where we have laying workers in a queenless colony, they will, as friend Atchley says, pile the eggs into the queen-cells that are in process of construction, but they don't stop at that, but go on in cell-stubs, drone comb, and even lay the worker comb full at times, but never allow the queen-cells they have laid in to mature, but cut them down as fast as the workers complete them. No doubt, if the queen-cells were introduced to queenless colonies they would produce drones. I'll find out, the next chance I have, even if it costs me a colony of bees to do it. I sometimes find a dead drone in a queen-cell where the other cells, built at the same time, all produce perfect queens.

I should like some light on that point, as I can't get up even a respectable theory as to the cause of it.

I vote yes on the picture of the Root family, and good large ones at that, even if it takes a whole number of GLEANINGS to do it.

Enfield, Ill., Aug. 6.

[Since publishing what we have in recent numbers, to the effect that bees do move eggs, we have received a large amount of correspondence corroborating the fact enough so that we think we can definitely and positively say that bees do at times move eggs from one part of the hive to another, and even deposit them in queen-cells. If we had room we would publish all the matter on this subject. But the gist of the whole of it is given above —ED.]

THE HATCH-ROOT DISCUSSION.

THE RIGHT SIZE OF BROOD NEST; SECTIONS OVER DUMMIES.

By Dr. C. C. Miller.

And now I've something more to say about that Hatch-Root controversy, p. 572. Ernest, you've rudely knocked from under me one of my props without a word of warning. All along I've cherished the hope that in some way it might turn out that there was never any need of having more than eight frames; and now you say a ten-frame hive is too small for a large colony. Are you going to climb the fence to the other side?

Isn't there something loose-jointed in the working gear of your mind, that will allow you to say that a ten-frame hive is too small for a large colony, and that you found as many as 12 to 15 frames of brood in some colonies, and then in the face of that to say that you don't think you secured more brood in ten-frame hives than in eight-frame? Now shut one eye and take a square look at these two questions. Firstly, don't you think a colony for which a ten-frame hive is too small will have more brood in a ten-frame hive than in an eight-frame one? Secondly, don't you think one of those colonies in which you found 12 to 15 frames of brood would have more brood in a ten-frame hive than in an eight-frame one?

Leaving that for the present, I note that you both agree that the queen will readily go to work in a story added above, at least if a frame of brood be put in the upper story. I should think so! Why, lots of bee-keepers use queen-excluders to keep the queen from going up, and there's no need of a brood-comb as bait either. But I'm a little puzzled to know whether there's any reason for adding the second story *above*, if there's good reason for adding a second story at all. I'm not experienced in that sort of thing; but it seems to me there are at least some reasons for putting it below. As Doolittle would say, it seems to me more according to nature.

A colony starts its combs above, and works downward. It lengthens its combs downward, and the brood keeps gradually working down. I can't imagine bees in a hollow tree working their brood down a certain distance, then making a fresh start at a higher point. But you say our bees are not in hollow trees. I admit it, and come back to the hive. I suppose the time when you would add the second story is when the bees first begin to be a little crowded, and, likely, that would be in the spring, or before the harvest. Now, at that time you're doing all you can to develop the strength of the colony, and it's considered important to preserve as much as possible the heat. Put a second story above, and the bees have twice as much room to keep warm as they had before, for the heat rises into the new story. Put a second story below, and the bees have no more to keep warm than they had before, unless they work down into the new story, and then they have to keep warm only so much as they occupy, while the empty story above must all be kept warm whether they occupy it or not.

I don't know whether you would contemplate putting on sections while the colony had these two stories; but if you should, I feel pretty sure the bees would not touch the sections till the upper story was filled; whereas, if the second story was added below I am inclined to the opinion that there might be some work done in sections before the lower story was filled.

To go back to that comparison of the 150 eight-frames with the 120 ten-frames, there's a point that I rather wonder friend Hatch didn't make. The claim is quite generally made, and I believe I never saw it contradicted, that colonies do not store honey in exact proportion to their strength, but that strong colonies gather proportionally more honey than weak ones. That is, a colony weighing 8 lbs. will store more than twice as much honey as one weighing 4 lbs.; and if we add one-fourth to the strength of a colony we will add *more* than a fourth to its surplus. According to that, although 120 ten-frame hives may be supposed to have only as many bees as 150 eight-frames, yet they ought to give more surplus.

You both seem to agree that bees fill out sections better over an outside frame of brood than over one of honey. I very much doubt it. Over empty combs or over an empty space they make poor work; but if the outside comb is occupied and filled I could never see that brood in it made any material difference. You say, Ernest, "When we used ten-frame hives and ten-frame supers, at least one outside row of sections was behind the other rows." That agrees precisely with my experience; but if you mean to have the inference drawn that the thing is different with eight-frame hives, then your bees don't work like mine. I don't think I ever knew a case, either with eight-frames or ten-frames, in which the outside rows of sections were finished as soon as the others. In the A B C it is claimed as an advantage of section-holders, that the outside rows can be shifted to the center. What's the need of shifting them if the rows are all finished alike? The fact is, that bees are slower about finishing the outside sections just because they *are* outside, independently of what may be under them.

While it was a straight fight between a ten-frame hive and an eight-frame, I could keep track of it pretty well; but now you're getting me all mixed up by talking as if eight-frames were, part of the time, not enough, and you let it leak out that you're running bees in two stories in the linden apiary. Now, look here; no hiding things. If you've been learning any thing new, tell. What were you using two stories for? Were you raising bees or honey? If honey, was it comb or extracted? Was there any gain in having the two stories? What time did you give the second story? When did you take it away? Just own up all about it. Here I've been trusting you to remain loyal to the eight-frame hive, single story, all the year round, and you've deserted and deceived me by running two stories, and, for aught I know, five stories, on the sly.

Now I'll tell you what I'd like. I'd like to be convinced that it is the most profitable thing to confine bees to eight frames all the year round; and, by the way, your head's very level when you insist that an eight-frame hive is better than a ten-frame with two dummies; and then if it must be admitted that *that* won't do in all cases, if you have any scheme by which the eight-frame can be held most of the year, and a second story added part of the time, I'm inclined to believe I'd rather submit to that than to go back to the larger hive.

Now please tell us just where you do stand, Ernest, at latest advices. Do you think a strong colony should be confined to an eight-frame hive all the year round—particularly if working for comb honey? and if not, just what would your procedure be? or are you like me, so uncertain and wiggly you don't know just where you do stand?

Marengo, Ill.

[As you have addressed me personally, I conclude it will serve my purpose better to come out from under the editorial "we" and use the singular pronoun.

To begin with, you have proposed some rather naughty knotty questions, and it *looks* as if the working-gear of my mind were rather "loose-jointed;" but by supplying some particulars, *perhaps* I can redeem that function of my anatomy.

In the first place, I ran the basswood yard for *bees*, and, incidentally, for extracted honey. There were two reasons for doing this: (1) I knew that, if I ran it for comb honey, they would swarm, and that would require an attendant. (2) I did not care so much for comb or extracted honey as for bees. In selling bees in the form of nuclei, we run short every fall, and the following spring we are obliged to buy up more or less poorly marked bees on crooked combs; and as it takes a couple of months to Italianize them, they are not suitable for filling orders till along in the season; hence you see the securing of bees was the prime object at the basswood yard. There being a heavy flow at this place, as soon as one story began to be crowded for brood and room for honey, I put on an upper story, putting one or two frames of brood in the same, and filling up the space below with frames of foundation. The upper story was then filled out with foundation. This, of course, would result in more brood and no swarming: and the consequence was, we had quite a few colonies having two upper stories with brood and honey scattered more or less in both; and there were three colonies that had three each, with brood in all the stories. Now that the season is over we have rousing big colonies, and a large number of combs containing more or less sealed honey. We may extract these, or we may reserve them to supply some colonies this fall that are short of stores. Now, then, having given you the situation, I will take up the questions in your second paragraph.

No, I do not think we did secure more brood in the ten-frame hive than in the eight-frame. If the ten-frame hives did not contain dummies there was a couple of frames of honey which we would rather have had in sections above. I may be mistaken: but I feel quite certain that we now rear as much brood in the single-story eight-frame as we formerly had in the single-story ten-frame hive.

Now, others may not agree with me, but I can get, I think, more brood in a tall chamber than in a shallow one spread out horizontally. In other words, I can get more brood easier in ten or twelve L. frames by having them piled up in *two* tiers of five and six frames respectively; because I always notice that the bees show a disposition to work upward or downward rather than laterally. According to this, if the brooding-chambers are in two stories the eight-frame body is plenty large, to say nothing of the ten and twelve-frame stories. But suppose the bees would work out laterally; and suppose they would fill out a twelve-frame Dovetail hive with brood, all of said frames in one tier. The hive would be too heavy to handle; and even a ten-frame hive is rather heavy for the average man to handle when it is filled with bees, brood, and honey; therefore, in consideration of the fact that bees like a tall rather than a horizontal chamber in which to rear brood; and with that other fact that it is handier to have that tall chamber in two sections, I should prefer the eight-frame to the ten-frame. The same logic might call for a smaller than an eight-frame, but it would not be standard.

The eight-frame chamber is large enough, at least ten months in the year, for ordinary honey production. If brood-rearing has been carried on two or three months in the year prior to the honey-flow, there will, according to Doolittle, on this 1000 square inches of comb, be a large enough force of bees to get the crop, providing there is one. Then the necessary room can be obtained by adding supers.

But you will say I want to run for comb honey, and others desire to run for extracted, and that you can not, in one story of the eight-frame, get more than eight frames of brood. Granted. But in most localities, if that eight-frame capacity is kept booming from May 1, we will say, until the middle of June, or about the time when the first white honey begins to come, you will have a large force of bees. Manifestly, after this time, if honey is the object, more brood is not wanted; because the bees, when they hatch from said brood, will be consumers after the honey-harvest; hence the eight frame, for the production of comb and extracted honey, in localities where the white honey comes on by the middle of June, and lasts anywhere from a month to six weeks, is large enough for breeding-purposes, and just small enough to make the bees *force* nearly all their white honey into the supers—just where we want it.

Now, I think I have answered your questions in the next to the last paragraph, and we may now consider whether the putting-on of the extra stories gives the bees just so much extra room to warm up. Well, to a certain extent it does; but we always make a practice of using division-boards; and, where convenient, use enamel cloth or something to lie over the lower set of frames on the cover. Perhaps you think this a nuisance; but it pays; but in the case of comb or extracted honey it is not necessary to add more than half an upper story at a time. In the case of the former, one tier of sections will not give a good colony too much room to keep warm. In the case of the latter, a half-story with extracting-frames, *a la* Dadant, can be added in a similar way with similar results.

But the advocates of shallow brood-chambers will claim, perhaps, right here, that it is better to have all the brood chambers divisible, and then the capacity of the hive can be increased more gradually, and that those who desire eight and ten frames of brood capacity can be accommodated by using two or three brood-chambers of the shallow sort. There may be a good deal in this. That being the case, if desiring to make a change I certainly should prefer to *reduce* the size of the brood-nest, something after the style of the Heddon, rather than to *increase* the eight-frame to ten or twelve frame capacity.

And now as to the 150 eight-frame or 120 ten-frame hives. You and Mr. Hatch seem to *assume* that the ten-frame colonies will be proportionally stronger than the eight-frame. With the right sort of manipulation I somewhat question this. But suppose they are. I should rather lift individually—that is, at 150 different times—150 eight-frame hives—that is, to lift them into a wagon or carry them into the cellar—than 120 ten-frame hives, full of bees, at 120 different times.

My views, as above stated, are subject to revision. I am quite willing to change to the ten or twelve frames; or, to go the other way, to shallow brood-chambers, if the logic of events shall in time demonstrate the wisdom of such a change in either direction.—ERNEST.]

SALT FOR QUEEN-CAGE CANDY.

FORMING SMALL NUCLEI.

By W. A. Pryal.

Has any queen-breeder tried salt in the sugar used to make the shipping-candy he sends out with his queens? I find that a small quantity of salt in the candy makes it soft at a time when it would otherwise be hard. This is something that we have all been striving for for some time. Should others' experience prove the same as mine, then I think we shall have solved one of the most difficult problems in shipping queens long distances.

The way I came to try this plan was, that I had made up some candy out of very fine sugar, which I had previously heated, and hot honey. Both were well mixed; and when they were set aside as finished, the mixture became as hard as stone after it had become cool. It remained in this condition for some days; but as the outside began to absorb the moisture from the air, it became soft. In time the whole mass "melted" down, and was almost as liquid as the honey was that I had used originally in the manufacture of the "candy." I attributed the rapid softening of my candy to the large amount of salt that the air in this part of the State is charged with. The cause of lead paint on buildings being so soon ruined here is said to be due to the saltiness of the atmosphere.

This knowledge led me to believe that it would be safe to make the candy quite hard for cages that were to be sent on a sea-voyage. The candy would soften about as fast as it was necessary. Had salt been added to the candy before the cage was shipped, the candy would have become too soft; should the candy have been of a soft composition ere the cage is sent off, the candy would also become too soft as soon as it was well on the salt water. For cages that were to be shipped altogether by land, especially through a hot country, the candy could be salted as much as necessary. Of course, the quantity of salt required for a single cage is comparatively small; but it has a wonderful effect in keeping the candy soft. Owing to the dry season in this State, or more especially in the southern part of the State, I did not have as many calls for queens as I otherwise should, hence I did not have an opportunity to test this plan of shipping as much as I could have desired. Still, I have tested it sufficiently to satisfy me that it is a great help to queen-breeders.

During the past season I have experimented with the Doolittle plan of rearing queens. The result of my experience has been such as to cause me to abandon the plan altogether. I tried his cell-cups and transplanted larvæ in the way he describes in his interesting book on queen-rearing; but in no case could I get the bees to accept any of them. I carried on these experiments at a time of the year when the bees would be the most likely to accept them. I even tried them after I had removed the queen-cells from the hives that the bees had already started themselves. Possibly, if I were to try this method another year I might be able to get better results. Still, as there was plenty of honey coming in at the times that I devoted to this line of experiments, I am inclined to think I can not achieve any better success another year than I experienced the past season.

In the many years that I have raised queens for my own use or for commercial purposes, I have never had so good results in getting fine good queens as I have when I have tried the plan mentioned by Simmins, in his "Modern Bee-farm," page 144. It is far easier than any of the artificial-cell methods, and, I am sure, no finer queens could be produced by any other method.

SMALL HIVES FOR QUEEN-REARING.

Some writers during the present year have mentioned the matter of small hives for rearing queens in. Several of these writers have referred to the subject in the pages of Gleanings. It is generally conceded that the small hives are unsatisfactory ; my experience is, that they should not be the chief hive used for this purpose. I find that a hive about the size of that used by Mr. Doolittle is the one that suits me best. Still, as they require so much comb space, and as I consider the combs too valuable for use in an apiary run principally for extracted honey, I devised a modification of the Doolittle plan.

During the height of the honey-flow, which is about the time when the bees commence to swarm, a very small hive can be used to advantage. From this on to about the time that the bees commence to drive the drones out of the hives, which here is usually about the middle of July, these hives can be kept in use. After that time they should be broken up. The way I have done to form these small hives is to divide one of the section-supers of a Dovetailed hive in two by putting a division-board across the super the short way thereof. I fill this super with small frames that hang on rabbets. Comb foundation should be placed in these frames so that the bees may the more quickly draw them out. Being placed upon a hive that is ready to store surplus honey, one will soon have a lot of nice combs, some of which should be filled with honey, while some should be only about half drawn out.

Three or four of these combs are placed in small hives made to take such a sized comb. As soon as a swarm has issued I get some of my small hives ready by taking as many frames as I require out of a super, and place them in my hives. They are now set where I intend the hives to remain while rearing queens. I next take a queen that has just hatched out, and cage her and leave her in a shaded place alongside of the nucleus hive that I am about to form. I then take half a pint of bees from the swarm that has clustered upon a tree near by, and dump them either upon the frames of the little hive or at the entrance. I prefer to empty them right into the hive if I know that they have not a queen with them; otherwise it is safer to turn them out at the entrance and watch them as they run into the hive, so that, if a queen is with them, she should be removed, and the queen that is in the cage near by released and allowed to run in with the bees. This young queen should be liberated at the time the bees are introduced at the top of the frames if the bees are thus placed in the nucleus.

I have found this a much easier way of forming nuclei than any other way that I have tried. Should one have sufficient young queens, a number of these small hives can be made up out of a large swarm. One can get very fine queens by taking the cells from a hive of one of his best Italian colonies that has just thrown off its second swarm, and using them for pulled queens. I have tried this way several times to my entire satisfaction. I could not wish for a more desirable way of raising queens.

These small hives should be treated in the same way, so far as the management is concerned, as the larger hives should. The only thing one has to look out for is, that they be well provisioned with honey. When they are found to be short, all one has to do is to take a frame of honey from the super where the small frames are drawn out, and exchange it for one of the frames in the nucleus that is short of stores. Sometimes it may be necessary to add a frame of brood to one of these hives so as to keep up its strength. This is an easy matter to do ; for, by allowing the queen in the hive, where the aforesaid combs are prepared, to have access to them, she will fill some of them with eggs, and consequently it will be necessary to remove only one of these frames of brood to the nucleus requiring brood.

Toward the end of the season, or about the time that the bees begin to drive out the drones, as I have already stated, it will be time to break up these nuclei, as about this time it is probable that robbers will be preying upon them. These small hives are also useful for keeping surplus queens in when the queen-raiser desires to use the larger hive for other purposes.

The use of these little hives will be found a great saving in many ways besides the cheapness of their manufacture, to the queen-breeder. It seems to me that no yard, especially in this State, could well afford to be without them.

North Temescal, Cal., July 30.

ERNEST R. ROOT.

THE MANAGING EDITOR'S CAREER AS SKETCHED BY DR. C. C. MILLER FOR THE AMERICAN BEE JOURNAL.

As announced editorially, the managing editor and subject of this sketch is making a tour on his wheel through Michigan, Wisconsin, and Illinois. He has doubtless made an unexpected appearance at the door of a goodly number of bee-keepers, and I have no doubt that, without exception, he has received a cordial reception. Notwithstanding there have been repeated requests for his picture in Gleanings, he has been too modest to accede, and it is without his permission that we gratify the wish of a host of readers in reproducing a picture, and sketch of his career, from the pen of his very warm friend Dr. C. C. Miller, which appeared in the

American Bee Journal some time ago. While we do not have his sanction, we feel sure that this will be quite as agreeable to the majority of the readers of GLEANINGS as his visit to the homes of those bee-keepers who are fortunate enough to be in the path of his wheel. While we may be taking unfair advantage of him in his absence, and perhaps seem to have transcended the proprieties, this general and oft-repeated desire for a look into the face of the editor is our only excuse for their insertion here and now. The writer, who holds Ernest in high esteem, being his big brother-in-law, with broad shoulders, will risk incurring his displeasure. Without further introduction we reproduce the sketch entire, with picture, as it appeared. J. T. C.

It is not often that a periodical is so favored as is the *Bee Journal*, with the opportunity to present to its readers, in a biographical sketch and by portrait, one who has come into well-earned prominence with such rapidity and permanency as Mr. Ernest R. Root. Though we have not met him face to face, we feel that we have in him a sympathetic brother and friend, if we may judge from the exceedingly pleasant and profitable correspondence that has passed between us.

Dr. Miller, who has known Mr. Root since his twelfth year, tells, as only the doctor can, how he has grown up into his present noble manhood and enviable position of usefulness as editor of "lovely GLEANINGS." Let us all hope that Mr. Root may long be spared to bless the field of apiarian literature with his graceful pen, and more graceful and earnest efforts in behalf of the whole bee-keeping world.

Permit us now to invite you to a careful reading of the following interesting life-story of our friend and brother-editor:

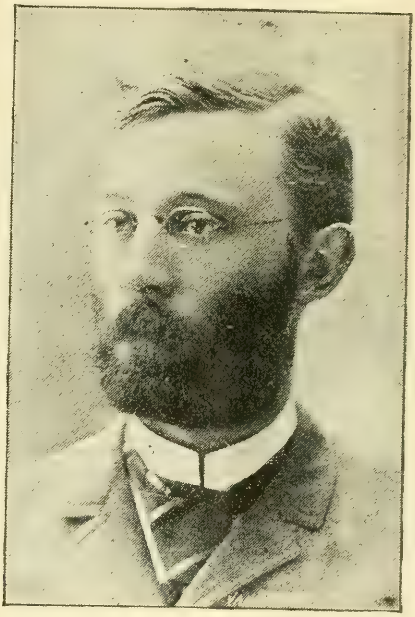
Somewhere about twenty-four years ago I visited Medina, Ohio, for the first time, going by stage, as there was then no railroad. Among the things I there saw was a boy, perhaps in his twelfth year (he was born June 23, 1862). His name was Ernest R. Root; and in spite of the three decades that have passed over his head, he is still called "Ernest," both at home and abroad, much oftener than "Mr. Root." I don't know just why this is; certainly not for want of respect Perhaps because his pleasantly cordial manner, both in writing and conversation, makes every one think of him as a familiar friend. I hope it may be always so. If he should ever get to be "Mr. Root" with me, I don't think I should like him as well as I do "Ernest."

The principal thing that I remember about him on that first visit is, that I do not recall that, during the 24 hours I was there, he was engaged in killing cats or tying tin cans to dogs' tails. So I don't suppose he was worse than the majority of boys. Indeed, I suppose he was too busy in other directions to have much time for such things. His father was A. I. Root. That's equivalent to saying he was a hobbyist—a born hobbyist. I am told that at a very early age he showed an extreme fondness for pictures—A. I.'s son, you see.

As a boy, one hobby was machinery, and to him a well-rigged water-wheel or windmill was the sum of earthly happiness. Later on, singly or combined, along with other hobbies, came mechanics, electricity, microscopy, bees, photography, and bicycles.

In electricity he thought he found himself the discoverer and inventor of many things of real value, but on informing himself more fully was somewhat chagrined to find that he was neither an inventor nor discoverer, for all his new things were old. In spite of that, he still retains a fondness for every thing connected with electricity.

The use of the microscope, notwithstanding its injury to a pair of eyes none the best fitted for it, was pursued with zeal; and among other microscopic studies, he took up the anatomy of the bee, going so far as to publish two or three articles thereon, when the appearance of the magnificent work of Cheshire made him again feel that he was only working over old ground.



ERNEST R. ROOT.

To go back. In the year '81 he entered the preparatory department of Oberlin College, and left at the end of four years without graduating, being obliged to go home and take part of the burden that had become too heavy for his father's shoulders. That settled him in one direction, and shortly after he was settled in another direction, when he capitulated to a pair of black eyes, with properly accompanying charms of mind and body, possessed by Miss Elizabeth Humphrey. After some opportunity for observation, I am glad to believe that in her Ernest has a very worthy wife. She has a rival in his affections in the person of their two-year-old son, Leland Ives—a rivalry that she seems to bear not only meekly but cheerfully.

Like his father, a rider of hobbies, I think Ernest is the better horseman of the two. Once fairly seated on a hobby, A. I. gives free rein; and if, in the chase, his hat is blown off, he only flings his arms the higher, and enjoys the fun. Ernest keeps a steady hand on the rein; and if the speed is too great, or the direction not to his mind, with a sharp pull he brings the hobby under control, or else deliberately dismounts.

Few have had the chance for editorial training that Ernest has had, and few have so well profited by it. Probably no one could tell when he became editor of Gleanings in Bee Culture. I doubt if at any point of time there was any formal transfer of the position of editor from father to son. The fact is, he grew into the place. Very likely not many of the readers of Gleanings know how fully under the control of the son are its columns. Except the home and garden departments, if I am not mistaken, unless you find the initials "A. I. R." attached, you may be sure that every thing has felt the editorial influence of Ernest. That the journal has lost nothing by the change of censorship, in the minds of its supporters, is evidenced by the fact that, within five years from the time Ernest took hold, the subscription list increased from five to ten thousand.

How much of the ability to control within proper limits his natural inclination to hobby-riding comes from a balance-wheel inherited from his mother, I can not say. I am quite inclined to credit that ability largely to the father. With a matured judgment coming from a wide experience, so long as it was needed, he kept a close watch lest any false step was taken, and very likely Ernest was saved from coming to grief more than once by listening to the advice of his more experienced father.

Being both independent thinkers, it is hardly to be expected that the father and son should always hold the same views. Indeed, they are very far from doing so. But to me it has always been very interesting to notice the readiness to concede on the part of each, and to view with respect the opinions of the other. Fortunately for the best use of the position he holds, in any question having an important bearing on the general interests of bee-keepers, Ernest never hesitates to seek counsel from those on whose experience he can rely, and in any important departure as to the manufacture or use of appliances he asks the opinions of a number whom he considers experts, seconded by his immediate cabinet of advisers—his father, his brother-in-law, J. T. Calvert, and the foreman of wood-work, J. S. Warner.

It is also fortunate that Ernest has given up, or sent to the background, his bent for invention. As an inventor his field would be more limited. He operates in a wider field, and is always on the lookout for improvements, come they from what source they may, new or old. And no pains are spared to get at the truth of the matter, or to bring it to public notice, if found worthy. Immediately connected with an immense manufacturing establishment, Gleanings holds a position as leader in largely deciding what shall and shall not be popularly used among bee-keepers—a position that it could not long hold if its leadings were not always carefully made in the direction of the best interests of all concerned.

I quote here from a sketch published about two years ago in the *Review*, written by the principal stenographer and proof-reader in the office of Gleanings:

"In manners, Ernest is very open and friendly. In fact, one knows him about as well after an hour's talk as he ever will. But this friendly urbanity does not prevent him from seeing the quack and impostor in an instant, so he is seldom, if ever, imposed upon. He is utterly destitute of selfishness; and his library, his camera, microscope, gun, or whatever he has, is entirely for the benefit of any who can be benefited thereby. His picture shows phrenologically an even balance of temper, which is well known to us here; for it is just as safe to ask a favor of him before dinner as after, which is not the case with most men.

"In speech, our junior editor is very rapid, with frequent interruptions, or going back to get a better word. In this respect he is just the opposite of his father, who seldom changes a word in dictating even two pages of "Our Homes," containing 3000 words. A. I. has all his editorials fully matured and ready to put together, like the stones in Solomon's temple, while Ernest goes more on the cut-and-try plan.

"But the best thing I can say about Ernest is the unchanging attention which he pays to his father and mother. With him, nothing must stand in the way of their convenience and pleasure."

"In speech," used by the writer quoted above, evidently refers to dictation for publication, for in convention, although perhaps a little rapid, he is easily followed, and I do not recall any hesitation or going back for a better word. He is a pleasant and easy conversationalist, with a certain inquiring expression that always suggests to me an interrogation-point—a never ceasing watch for what may be new or true.

I can hardly say as much for his writing as his speech. I have little faith in the ability to read character from handwriting; and if I were called to pass a night for the first time in a room with Ernest, with no other knowledge of him than seeing some of his handwriting, I should surely want to put my watch under my pillow. Perhaps if I had the privilege of a stenographer and phonograph, *my* chirography might be no better than his.

The word in the German language that means "earnest" is "ernst," and changing the first letter to a capital it becomes the proper name Ernst, which in English is changed to Ernest; so there might seem something prophetic in his christening, for if any one characteristic stands out prominen in Ernest's make-up it is his intense earnestness I remember being quite amused at a bee-keepers convention at seeing him carrying about with him a piece of a frame, in which he was at that time much interested; and wherever you saw Ernest there you saw that piece of stick to which he was solemnly holding on, apparently determined that he must make others see in it the merits he saw And he did.

As mentioned in the quotation given, anothe characteristic is evenness. Whether at the factory at church, at convention, at his house, he alway has seemed to me alike, the same earnest Ernest As might be expected, he is active in the churc and Christian Endeavor Society, and has been elected for the third time as superintendent of th Sunday-school.

Among the many bee-keepers with whom I a proud to claim acquaintance, none appear to m more like a brother. He seems more nearly my ow age (most of the others seem older), and somehow can get closer to him. Probably others feel muc the same toward him.

HONEY STATISTICS.

ONE OF THE POOREST CROPS ON RECORD.

Three weeks ago we sent out about two hundred return postal cards on which were printed these questions: 1. What has been the honey season in your vicinity, so far as you know? 2. What was your average yield per colony, in honey, both comb and extracted? Space was left for a brief answer under each, and for name and address of reporter. The replies and reports received from others are compiled by States.

Briefly stated, the honey crop seems to have been most abundant in central and lower Florida; good in Texas; fairly good in spots, in Kern and Inyo Counties, Cal.; in Oregon, Utah, Colorado, Minnesota, Wisconsin, Ohio, Michigan, New York, and New England; very poor in other portions of most of these States and others, and a total failure in the most of California, Nebraska, Iowa, Illinois, Missouri, Kentucky, Tennessee, Mississippi, North Carolina, South Carolina, and Georgia. The general impression given by the reports for the whole country is not flattering.

One peculiar thing we have noted from reports is the uneven distribution. Of two bee-keepers but a few miles apart, one would get a fairly good crop, while the other's bees would be starving. On this account these reports may not fairly represent many localities, as the reports received will not average more than five or six to each State. If your locality is not fairly reported in this summary, let us hear from you briefly on a postal, by earliest mail. Don't put it off, but sit right down and write as soon as you read this report, if it does not do justice to your section and place. Do not write about any thing else on the same card.

Reports so far received and condensed for each State are as follows:

Alabama.—Poor; no comb; 20 lbs. ex'd.

Arkansas.—Poor; 30 lbs. extracted, 15 comb.

California.—Five report very poor; feeding; fair in Kern Co.; failure as a whole.

Colorado.—Two report fair, full average; 75 lbs. comb, 100 ex'd.

Connecticut.—Six report as follows: Medium, 10 to 15 lbs.; fair, 20 lbs. comb; rather above average, 20 to 25 lbs.; early flow good, 25 lbs.; comb above average, 40 lbs. comb; good, 25 lbs.

Florida.—Six report like this: "Best ever known;" "extra good," etc. W. S. Hart's neighborhood will have about 200 tons. His own average is 344⅓ lbs.; another reports 551¼ lbs. from one colony, but not the best. J. B. Case averages 360 lbs. extra'd, 9 tons from 50 colonies. Florida is "in it" this year.

Georgia.—Six report: Total failure, poorest season for years, no honey, etc. Nothing encouraging

Illinois.—Ten report. Dr. C. C. Miller says, "Bad, bad, very bad. Yield, average, 1 6 oz." That tells the story for Illinois, though Mrs. Axtell reports 9½ lbs. per colony. Dadant gets "nothing," and will have to feed. For a fuller report from Illinois, see next column.

Indiana.—Five report poor; one, better than for years; two, from 20 to 40 per cent of average crop; one, 35 lbs. comb honey.

Iowa.—Nine report. "Absolute failure;" "worst ever known," etc., is the tenor of all.

Kentucky.—Eight report, showing a complete failure in that State; not an encouraging word.

Louisiana.—One report -medium season; 30 lbs. ex'd.

Maine.—Four report "fair," "excellent," etc., with a yield of from 25 to 50 lbs.

Maryland.—Two report "fairly good."

Massachusetts.—Three report "very poor."

Michigan.—Seven report as follows: Good from basswood; 135 colonies gave 5 lbs.; very poor; ¼ of an average yield; poor; poor, not to exceed 10 lbs.; very poor is reported by R. L. Taylor.

Minnesota.—Four report: Fair to good; two, poor; H. G. Acklin gets 27½ lbs. per colony, with good reports from those near basswood.

Missouri.—Two report poor; one, 50 lbs. per hive; another 10 to 40, ex'd—comb, ⅛ less; S. E. Miller reports basswood as doing well.

Mississippi.—Dr. Blanton says: "The worst season known in twenty years."

Nebraska.—Five report "very poor"—no surplus.

Nevada.—E. A. Moore reports, "The worst in 12 years. I generally get 100 lbs. to the hive; this year not 25.

New Hampshire.—One reports, a little below average; one, very poor; one, very fair; one, white clover good.

New Jersey.—One reports "about 40 lbs. comb; one, poor.

New York.—Seventeen report as follows: Basswood medium; ⅔ crop, 40 lbs. comb; poorest ever known; 30 lbs. comb in St. Lawrence Co.; Doolittle has half a crop, 50 lbs. comb, no ex'd; Cayuga Co., very good; Coggshall has ⅛ of a basswood crop; Langdon, less than half; poor—very poor at Chenango Bridge; Greiner, 30 lbs. comb, 50 ex'd; Elwood gets half a crop of white; good in Seneca Co.; very poor at Batavia; fair in Sullivan Co.; average of 24 lbs. at Belden.

North Carolina.—Poorest known.

Ohio.—Poor; very poor; comparative failure, etc., is the verdict of nine reporters

Oregon.—Fair.

Pennsylvania.—One reports very good; four, very poor; one, half a crop; one, 25 lbs. comb; one, worst season in seven years.

Rhode Island.—Two report half a crop.

South Carolina.—Two report "one of the poorest."

Tennessee.—Four report a complete failure; one gets 25 lbs. comb, 35 ex'd; one, poor; one, 30 lbs. per hive from 50; one, much honey-dew.

Texas.—One reports, "Continued flow from May 1; no telling when it will stop." J. E. Lay reports "good," two more, later, "very good."

Utah.—G. N. Dow reports "very good," with 60 lbs. per colony, ex'd, at Salt Lake City.

Vermont.—Three report an average crop. J. E. Crane gets 37 lbs. per hive; A. E. Manum, 35; three report "poor;" two, "the best in several years."

Virginia.—Two report poor; one gets 15 lbs. comb.

West Virginia.—Poor, very good, extra fair, is what three reporters say; average of about 30 lbs. honey.

Wisconsin.—Two report very poor; C. Grimm, 20 lbs. comb, 50 ex'd, per colony; P. P. Best, 50 lbs. ex'd, 10 lbs. comb; Frank McNay, 50 lbs.; M. A. Gill, 100 lbs. per colony. Later, two report good.

THE HONEY YIELD IN ILLINOIS.

The following is the July report of prospects of honey from the members of the Illinois State Bee-keepers' Association. The questions and answers correspond in number.

1. How many colonies have you?
2. What are the prospects of a honey crop?
3. How much honey gathered to date?
4. Is the honey gathered No. 1 or not?

Allen, Thos. B., Stirrup Grove, Macoupin Co.—1. 31; 2. Poorest ever known; 3. Not any—have not even put on sections.

Anthony, A. B., Coleta, Whiteside Co.—1. 27; 2. No more for this unusually dry season; 3. 200 lbs. comb, 100 lbs. extracted; 4. Basswood, and No. 1 for the kind.

Arnold, Frank H., Deer Plain, Calhoun Co.—1. 95; 2. Very poor; 3. About 1100 lbs; 4. No. 1 of its kind (honey-dew).

Beall, C. M., Clayton, Adams Co.—1. 8; 2. Some buckwheat sown from which they will probably get honey enough to winter on; 3. None. I put on no supers, as the white clover was all killed, and there is no basswood in this vicinity.

Bevier, M., Bradford, Stark Co.—1. 40; 2. Poor; 3. None.

Black, S. N., Clayton, Adams Co.—1. 35; 2. No honey; 3. None.

Blunier, Peter, Roanoke, Woodford Co.—1. 51 in spring; 2. Very poor; 3. About 200 lbs. so far; 4. good quality.

Cadwallader, D. A., Prairie du Rocher, Randolph Co.—1. 27; 2. Medium; 3. 500 lbs. estimated; 4. Yes, clover and basswood.

Cole, G. W., Canton, Fulton Co.—1. 24; 2. Very poor; 3. About 60 lbs.; 4. No. 1. I saved one swarm—two went on a strike.

Covell, C., Buda, Bureau Co.—1. 35, and have the care of others; 2. Not good, very dry, and little prospects of fall bloom; 3. Not any, on an average enough for winter stores; 4. Is basswood.

Dadant & Son, Hamilton, Hancock Co.—1. 350, 2. None; 3. None; 4. Will have to feed for winter.

Dale, Peter, Granville, Putnam Co.—1. 135; 2. Very slim; 3. About 50 lbs.; 4. Yes.

England, P. J., Fancy Prairie, Menard Co.—1. 26; 2. Poor; 3. 25 lbs. extracted; 4. No. 1.

Everett, J. D., Oak Park, Cook Co.—1. 34; 2. Fair; 3. 158 lbs.; 4. No.

Flanagan, E. T., Belleville, St. Clair Co.—1 250; 2. Poor; 3 None;

Hambaugh, J. M., Spring, Brown Co.—1. 130; 2. Exceedingly slim; 3. 2500 lbs.; 4. ½ dark, ½ better, but not No. 1.

Hayck, Bernard W., Quincy, Adams Co.—1. 25; 2. Not good; 3. So far not enough to winter my bees on; 4. Not No. 1.

Highbarger, Leroy, Leaf River, Ogle Co.—1. 80; 2. Very poor. The worst drouth ever known; pastures all burned up; 3. 100 lbs. clover, basswood, and honey-dew. Bees are doing nothing now; 4. Clover and linden, No. 1.

Little, Wm., Marissa, St. Clair Co.—1. 60; 2. For fall crops, fair if rains fall; 3. My crop ruined by honey-dew; 4. Good for nothing but bee-feed.

Miller, Dr. C. C., Marengo, McHenry Co.—1. 202; 2. Nil; 3. Nary a drop.

Phelps, Adam, Springfield.—1. 28; 2. Poor; 3. Not a drop; bees on a strike.

Poindexter, Geo., Kenney, Dewitt Co.—1. 90; 2. Very poor; 3. 50; 4. Not No. 1.

Poindexter, Jas., Bloomington.—1. 50, and 30 nuclei; 2. Think will get the bees summered safely; 3. No surplus; 4. Basswood mostly.

Robbins, Geo. F., Mechanicsburg, Sangamon Co.—1. 79; 2. None so far; 3. No surplus, only enough to fill brood-nest; 4. No. Chiefly honey-dew.

Smith, J. Q., Lincoln, Logan Co.—1. 62; 2. Poor; 3. 200 lbs. alsike clover; 4. No. 1.

Snell, F. A., Milledgeville, Carroll Co.—1. 112; 2. Not very flattering; 3. About 600 lbs.; 4. No. 1.

Vandenburg, P E., Jerseyville, Jersey Co.—1. 38; 2. Poor—no surplus; 3. Not any surplus; 4. Don't know.

Van Meter, W. M., Era, Cook Co, Tex.—1. 8; 2. Not good on account of drouth; 3. About 100; 4. Very good.

Vibert, F. C., Hockanum, Conn.—1. 7; 2. Very poor—the severest drouth ever known is the cause; 3. 24 sections from two colonies taken July 1st: 4. No. 1 As fine as I ever saw.

Whittlesey, E., Pecatonica, Winnebago Co—1. 71; 2. Very poor; 3. None in sections; 4. No white honey—clover, linden, and honey-dew mixed. No No. 1 honey in this part of the country.

Bradfordton, Ill. JAS. A. STONE, *Sec.*

CANDY FOR QUEEN-CAGES.

SOMETHING IN REGARD TO ITS USE IN AUSTRALIA.

By H. L. Jones.

I have noticed several articles in GLEANINGS recently, regarding the effect of dry climates on queen-cage candy, and it now seems to be the general belief that the loss in shipping queens long distances is due mainly to the behavior of the candy. I will give you a little of my experience in importing queens from America during the present season.

From one breeder I received 12 queens; but only one came through alive, and she was the only surviving inmate of the cage. With this consignment I'm sure the condition of the candy had little to do with the loss, as it was still moist and in good condition. To test the matter still further I used what remained of it to provision cages in sending off a distant consignment of queens, and it fulfilled its purpose admirably. I received also a number of queens from other dealers; but with one exception all were dead. With these, too, the candy was in most if not all cases all right. The majority of queens were put up in large three-hole cases, and the loss in many instances was distinctly traceable to the fact that some bees had got stuck in the candy, and thus cut off supplies. A cage of this kind is not at all adapted for successful shipment. The candy (the weight) being all at one end, the cage will, on being tumbled into the mail-bag, in most cases settle with this end down, and thus on a three-weeks' trip across the ocean the bees, as they die off, will drop straight into the candy, and communication with the food is soon cut off. A shallow six or eight hole cage, one side ventilated and one side not, with at least two entrances to the candy, also some kind of guard to make it almost impossible for dead bees to roll into the candy, will give much better success. Of course, the candy could be placed at both ends of the cage, but this would necessitate a double supply and a larger cage.

To give you some idea of the condition of the candy after passing through various climates, I send you to-day a queen in a cage of my own design. If she comes through all right, score one for the cage; but I hardly think she will at this time of the year, as her vitality will be pretty well exhausted by the time she reaches the United States; and the cold weather you wil still be having will probably finish her off.

I also send you a sample of my Australasia mailing-cage, which is a slight modification o the old-style Benton; but I can assure you it i far more nearly infallible. Out of nearly 50 queens sent in it to all parts of Australasia al ready this season, I have not yet had a singl loss. I have also sent out a number in you eight-hole long-distance cages, also several oth er kinds of cages, but not with the same suc cess. You will notice that the passageway connecting the larger holes are cut clean awa and not simply bored, as with your old Benton and in this lies the advantage. With the sma bored passageway, one bee stuck in the cand is sufficient to block up the hole and cut o communication with the food; but with th entrances cut clean away, when a bee ge hurled into the candy by any sudden jerk the is still sufficient room for a bee to reach th candy, and usually the bogged bee is release before it dies. Now, don't say this cage is t large, as it goes anywhere for a penny (2 cents and this is our lowest rate of postage.

I make my candy of best icing sugar (16 cen per lb.); warm the honey, and mix up as y have so often described. H. L. JONES.

Goodna, Queen'd, Australia, Feb., 1894.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N. Y.

FERTILIZING QUEENS IN CONFINEMENT.

Question.—What is the best plan of fertilizing queens in confinement?

Answer.—So far as I know, there is no practical method of fertilizing queens except to allow them to have their own way, as they have had ever since God placed the little busy bee on the earth. And, furthermore, I do not believe that any successful plan has yet been discovered. After trying faithfully all the plans ever given, only to fail, I feel that I am excusable in saying that I doubt the truth of any one having a queen fertilized in confinement, and believe that those who claim to have succeeded have either deceived others or are deceiving themselves by careless experiments. They may think that they have succeeded in having queens fertilized in that way; but for all that, the chances are that the queen was fertilized as all queens are, when not known by the experimenter. Nature, for various reasons, has provided that the queen should meet the drone in the air, unrestricted by any thing; and they insist on doing as nature has provided, or in not mating with the drone at all. I am often surprised at the amount of money thrown away on plans which were thoroughly tried and proved to be an entire failure years ago. One man wrote me some time ago that he was ready for the money I offered for a really practical plan by which queen-bees could be mated to any desired individual drone, with no more work than was necessary with our domesticated animals, for he had a plan that would fill the bill. I wrote him that, before I parted with my money, I should require that he give me a brief outline of his plan, so that I might judge of the practicability of it, and whether it would come under the specifications regarding the amount of work required. When the reply came, his plan that would "fill the bill" was no more nor less than the one tried by Bro. Root years ago; namely, that of building a large glass house or greenhouse, and setting the hives having the queen and desired drones inside for a few days, when they were to be set out and another set in its place. "In this way," said he, "I have had several queens become fertile and go to laying." When I wrote him that his plan was an old one, and that, in all probability, his queens went out to meet the drone either before he set them in the greenhouse, or else after he took them out, he wrote back denouncing me in any thing but gentle terms, and claiming that I did not mean to give any thing for any plan. Another writes me that he has a new plan which he is going to put into operation next year; and when asked to outline the same a little he very reluctantly gives, enjoining the greatest secrecy, the oldest and most tried plan of any—that of a large tent or house made of wire cloth, in which to set any colony having the desired queen and drones. When written to that his "new" plan was one of the oldest, and had been tried by scores, only to fail, he can not think it possible, and says he is still inclined to doubt the truth of my statement, and will rig a wire-cloth house and try it, in any event. Of course, if any insist on trying such a thing, after being cautioned, there is no law of the land to hinder their doing so. I find that the persons who believe success just ahead of them along this line are beginners; and the reason for noticing this query at all in this department is with the hope of saving some from throwing away their money on plans for fertilizing queens in confinement, which do not have even a shadow of success in them.

REARING QUEENS.

Question.—I have decided that every colony that is intended to be run for comb honey next year must contain a queen of this year's rearing. I desire good queens, that my stock may not deteriorate. In view of the foregoing, what plan can I follow in order to produce the best results for a series of years?

Answer.—I can not conceive what line of argument could have been used to bring the questioner to a decision that he would not allow a queen over a year old in his apiary, which was to be run for comb honey, and can not help thinking that, when his experience accumulates, he will find that his decision is not well founded; for queens which are in their second year do fully as good work as younger ones, where the colony is worked for comb honey, and often are equally good the third and fourth year. Besides, I find, as a rule, that the bees will supersede their own queens as soon as they begin to fail to any appreciable extent; and when the bees undertake this work it is done much more satisfactorily, all things considered, than it is when the apiarist attempts to say, "This shall be," or, "This shall not be."

But if you think you must have your own way, then there is probably no better plan than to follow Willie Atchley's way, as has been given in GLEANINGS during the past year or two. If you think this too much bother, or consider it "fussy," as some claim, then you can rear pretty good queens in this way: Kill the old queen and let each colony rear one from her brood. In five days from the time you killed the old queen, open the hives and look for queen-cells. In doing this it is well to shake the bees off the combs so that the cells can be easily discovered. If any are found capped at this time they should be destroyed, as they will contain larvæ that are too old to make good queens. Bees do not cap over a cell containing a good queen larva, as a rule, in less than six days from the time the mother-queen is removed. The reason for this lies in the fact that bees rarely miss their queen to a sufficient extent to start cells in less than two and a half days after her removal; and if you find cells sealed over on the fifth day after the removal of the old (or mother) queen, you may know that the larva in said capped cell must have been three and a half days old when the bees undertook to change it to a queen. All queen-rearers agree that larvæ two days old and under give the best queens, and that a larva older than three days should never be used under any circumstances, if we would have queens which can be to any extent called good. Of course, the colony is to be well fed, if no honey is coming in from the fields, until the sixth day, or till the cells are capped over.

TRADE NOTES
BY EARNEST R. ROOT.

THAT IMPROVEMENT OF THE ALLEY TRAP.

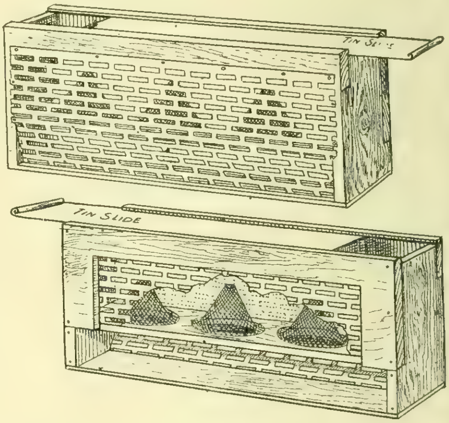
By Henry Alley.

About the first thing that met my eye on opening Gleanings of Aug. 1 was the article describing an alleged improvement of the Alley trap. The editor has an idea that Mr. Harrison's "improvement" is original. So far as catching drones on entering the hive, it is new; but so far as covering the front of the trap with metal, it is *not* new. Not less than fifty bee-keepers have made this same improvement since the trap was devised. When I pointed out to them the objections to such an arrangement they saw at once that the improvement was not much of an improvement after all. I have a trap in my office that has been in my possession about seven years, just the same thing as Harrison's, except the part of catching drones from the outside. The man who left the trap with me had just come from Washington where he had been to get his *improvement* patented. He was told that another man had a patent on the same thing. And that was the last I ever heard from that particular improved trap.

Well, now, the objection to a trap arranged as Mr. Harrison's is—that is, with the front covered with perforated metal—is this: When the bees return from the field they enter the trap instead of going through the metal at the entrance and direct into the hive. There they lose much time in trying to find their way out. Now, this same arrangement of covering the front of the trap has been suggested by a hundred bee-keepers. Of course, I had tested the same thing long before any one else had thought of it.

The first traps sent out in 1882 had a perforated slide in the top. Then that had to be discarded, as bees would enter the trap in that way, and could not find their way out for a long time. I do not consider the arrangement to catch drones going into the hive of any practical value, or even needed in the trap, to say nothing about its being an improvement. If the trap catches drones when they attempt to leave the hive, of what use is it to have an arrangement to catch them the other way? If such circumstances should ever occur that one would like to catch drones entering a hive, then the thing to do is to reverse the position of the trap, and the thing can be done as well as if not better than by the Harrison arrangement.

But Mr. Harrison says his device gives better ventilation to the hive than my trap. It seems to me that he has not seen our improved trap, such as we have been sending out for the last two years, or he would make no such claim as he does. Not only is the front part of the improved trap covered by metal, but a part of the back as well. If bees enter the trap as now made they do not spend any time in trying to find their way out, but pass directly through the trap into the hive.



Then, again, the bees can leave the hive by passing through the upper part of the trap as well as by the regular entrance. The improved trap not only admits of all the above advantages, but makes it impossible to so place the trap on the hive that the bees can not find their way out. But if I understand the Harrison arrangement, it has the same defect the old-style Alley trap had. That is, unless care were used in adjusting the trap to the hive, the colony would be closed in and soon smothered. This can not be done with the improved trap. As thousands of the readers of Gleanings have the old-style trap in use, I will instruct them how to apply the improvements above stated.

Saw out of the back of the trap about a third of the wood, say a piece 6 inches by 2½. Cover the aperture with Root's metal. Nail it to the inside of the trap, as by so doing there will be a good large bee-space for the bees to pass up between the front of the hive and the back of the trap. The front of the trap should also be covered with metal. Now, if you have any traps on hand not nailed up, put in three of the wire tubes instead of one. All our improved traps have three tubes; and so sure as a drone attempts to leave the hive, he finds himself in the trap before he knows it.

I shall send one of the improved (old-style) traps to the editor, and may be he can illustrate the imprcvements so that all will better understand them.

Wenham, Mass.

GLEANINGS IN BEE CULTURE
A Journal devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year.

And there shall be no night there; and they need no candle, neither light of the sun; for the Lord God giveth them light: and they shall reign for ever and ever.—Rev. 22: 5.

We got such an onslaught of articles on the tariff question, that we found it absolutely necessary to bring the discussion to a close. The subject is too redhot for our columns; and, besides, it is quite apt to run into politics only, with no reference to bees, and, we are sorry to say, bitter feelings toward those who hold opposite views are apt to be engendered.

It may not be amiss to remind you who are using the Hoffman frames for the first season, that propolis, during this time of year, acts the worst it ever will; and that, after the frames have been in use for two years, and the edges covered with old propolis, *new* propolis, of the disagreeable, sticky kind, will not be deposited so freely. In fact, the two-year-old Hoffman frames work nicer than the first year, along in the fall.

CONTINUOUS ADVERTISING.

We find the following good advice in the *American Bee Journal;* and if you have an advertisement that does not pay, please read carefully what Editor York has to say. Possibly it may explain the trouble:

> Continuous advertising, even if it be only a small announcement, pays the advertiser the best in the long run. Spasmodic advertising, like "spasms" of any kind, is unsatisfactory. To secure the very best results, year in and year out, you must keep your name and business before the public. Only by so doing can you hope to keep from being forgotten when the time comes that your would-be customers wish to purchase what they want.
>
> Besides, in the fall of the year more agricultural papers send out large numbers of sample copies, and the advertiser fails to get the advantage of reaching the thousands who get the free sample copies, unless he keeps his advertisement running *all the time*. This is a matter worth thinking about. Heed the lesson taught by that intelligent comb-foundation firm, Chas. Dadant & Son, and also others, whose advertisements are found in *every number* of the *Bee Journal*, without a single miss.

ANOTHER BICYCLE TOUR.

It is not to be, but is already partly a thing of the past. Why didn't we give notice? We could not tell exactly when we could get away best, or what route we would take. Briefly, this is the one so far taken: Mounted on the Victor Flyer, we halted, after a few miles' ride, at the apiary of Vernon Burt. Again resuming the saddle we hung to it till we reached Boardman's, at East Townsend, near Norwalk. We stayed so long here that we had to take the train for the last 30 miles, *en route* for Toledo. Nevertheless we covered on the wheel, besides the stops, 75 miles. We stayed at Dr. Mason's over night, and the next morning wheeled to Detroit, stopping on the way to hunt up certain obscure bee-keepers. This day's run was 70 or 80 miles. Next day found us at Bell Branch, the home of M. H. Hunt. We lost the way, and ran needlessly some seven or eight miles out of the road. Again we are in the saddle, with M. H. Hunt for a pilot, to see that we get started right this time. We then left him and reached Flint—the last part of the journey having to be completed on the cars by reason of the impassableness of the roads for sand. This latter article was so plentiful for the rest of the way that we took the train for Lapeer. We now start from Manistee to Chicago by boat; and from this point we shall resume the use of the wheel—for what points we shall learn later, for *we* don't know yet. We shall never—no, *never*—attempt on the wheel to ride over sandy country again.

We have picked up on the way many interesting things, and later on will try to give them to you under Notes of Bicycle Travel.

We find so far on the route that the honey season, while better than last, has been rather poor. Every thing, except the lakes, seemed to be parched in drouth. As a consequence, smoke and fire are getting in some of their work.

THE ST. JOSEPH SOUVENIR.

Well, what is that? Imagine that you have in your hands a book 15 inches long, sidewise, and 11 inches from top to bottom, containing about 150 pages, and you will have an idea of the outward appearance of this work. How about the inside? That consists partly of elegantly printed half-tone views of the principal buildings and other points of interest in that stirring city known as St. Joseph. The title-page is a view of the city itself, 35 inches in length. As no camera would take so large a view, the wonder is how it was done. Five consecutive "shots" were taken, each time pointing the camera a little further to one side, taking in the whole range of view. These negatives were then half-toned, and the plates fastened side by side and printed. This gives a most comprehensive view of the city, and the sides of the picture are as clearly printed as the middle. Besides all this we have a multitude of half tones showing the representative men of that city, with short biographies of each. We know of no city of its size that has taken so much pains to give to the outer world an idea of its appearance as St. Joseph. It is in every sense creditable to the city and to the projectors of the work, and can not fail to be of great interest to all who contemplate taking in the convention next month. Judging from the picture, we think St. Joseph will be a capital place to hie to during October — the finest month of the year. We do not know the price of the book; but it can be obtained of the News Publishing Co., St. Joseph, Mo.

PROPOLIS; HOFFMAN FRAMES IN THE FALL; DISAGREEABLE HYBRIDS; A SCHEME FOR FINDING HYBRID QUEENS, THAT DID NOT FULLY MATERIALIZE.

At our basswood yard we have three very strong hybrid colonies, each occupying three eight-frame stories. The bees are very cross; but after the honey-flow we decided to change the queens. When we came to hunt them up we found we had a job on our hands indeed. Like simon-pure hybrids—if, indeed, hybrids can be called pure—they stung, boiled all over the frames and over the sides of the hives, and the queens, of course, could not be found without spending more time than we cared to take. We concluded that, in all three of the colonies, the queens must be in the two upper stories. Accordingly, after lifting those off from one of the colonies (my! but they were heavy with honey), we put on the bottom story, perforated zinc honey-board, and the Porter bee-escape. This we did with the other two. "Now," said we, "if the bees will only desert their brood, and go through this bee-escape, the queen will, of course, go too. When past the bee-escape she will be in the space between the honey-board and the escape-board, and trapped for easy execution. We had some misgivings; and accordingly, in 24 hours, we went down to see how things worked. The upper stories were thinned out some, but not enough to justify us in hauling them over again in what might be a fruitless attempt to find the queens. Forty-eight hours more elapsed. As we had not time to go down we sent our apiarist. There were still some left in both upper stories; and the bees in the lower story broodless and queenless, and nearly starving, were howling mad. There now being fewer bees in the way, the queens were captured and executed according to the decree, but were not neatly and automatically imprisoned, as we had planned in the first place. Even if the hybrids were as gentle as flies, they propolize things so that it is exceedingly disagreeable to work with them. Why, it was all we could do to pull apart one story from another; and there were no burr-comb attachments between them either; and as to removing the cover, it takes nearly the full main strength of a good average man. "Oh, yes!" you say, "I would use enamel cloth." But your covers would blow off, and then you have that much extra expense in the useless cloth. The best solution of the trouble is to keep pure Italians or Carniolans.

H. L. JONES, GOODNA, QUEENSLAND, AUSTRALIA.

For the last ten years, with increasing frequency, the name of H. L. Jones has appeared in this journal as one of the rising lights in apiculture in that far-away land where they have their hot days in December. Thirteen years ago friend Jones was not worth a penny, in a financial sense; but, being possessed of pluck and perseverance, he resolved to see what he could do with bees for a livelihood. At this time he was only fifteen years old. He has now one of the largest and most successful trades in bees, etc., in the southern hemisphere. Without borrowing a cent of capital, friend Jones has now a business worth several thousand dollars, and his trade is constantly increasing. We have always found him to be a prompt business man, and our good opinion of him, which we had at the first, has increased as we have known more about him. We are glad to present his picture to our readers.

OURSELVES AND OUR NEIGHBORS BY A. I. ROOT.

LAKESIDE.

> And there shall in no wise enter into the city any thing that defileth, neither whatsoever worketh abomination, or maketh a lie; but they which are written in the Lamb's book of life.—Rev. 21: 27.

The gate leading into the Lakeside grounds is on a sidehill; and it is so wide that I did not notice the inclosure at all. It is true, a young man stood by the side of the way, and as I passed him on my wheel I noticed that he raised his hand. I regarded this as a sort of salutation, and touched my cap to him as I passed by. Pretty soon it began to be evident, however, that I was inside the grounds. Had it not been downhill I should have stopped a little sooner; but the light wheels nowadays do not have brakes. I finally fetched up, and walked back to where the young man stood, and asked him if he wanted me. He said he simply wished to ask me if I had a ticket. Said I, "But, my good friend, suppose I did not have any ticket. Do you let everybody go in free who does not turn back as I did?"

"Well, people who come here do not, as a rule, want to go in without a ticket, even if they can. I did not feel at all troubled, for I was sure you would come back."

That was the first glimpse of the way things are done at Lakeside, and to me it was a revelation. I ran around the grounds for a little while in order to see what Lakeside is like, and then I turned up by the W. C. T. U. headquarters, and made inquiries in regard to board and lodging. The rooms were pretty well taken up; but a very pleasant, motherly woman soon showed me a room I could have for 25 cents a day. Of course, we did not get much style for such a small sum. There was a clean comfortable bed, mosquito-netting over the windows and door, and, in short, all that was needed for a sleeping-apartment at this season. In order to have it cool and airy during the sultry August weather, the rooms were all open overhead. There were partitions that did not go up higher than one could well reach. I remarked to my attendant, that, if anybody were disposed to "break through and steal," he would find very little hindrance. She replied that so few vicious people ever came on to their grounds, or wanted to be in such a place, that they left their clothing and even valuables wherever it seemed handiest, and it was very rare indeed to hear of any thing being stolen. I noticed afterward that rocking-chairs, hammocks, and various articles of apparel, were left outdoors all night. Nobody seemed to be troubled about missing any thing.* Services were being held at the time in the Auditorium, and I looked around for a place to put my wheel while I went to meeting. All around the Auditorium are little shops and stores. For instance, there is a bakery, general office, meat-market, grocery, dry-goods store, shoe-shop, etc.; and all those things that are likely to be needed are close at hand. Among them I noticed a good-sized room where parcels could be checked. I asked them if they could take charge of my wheel. "Oh, yes!" said the young man who was in charge. "Just set it back there and it will be perfectly safe." However, I felt a little anxious, and asked him if he could not put on a check. He said he could, and did so. The charge was only a *nickel*. When I told him I might wish to leave it a couple of days he said it would make no difference. Moderate charges for every accommodation seems to be the rule all over Lakeside. In passing a locomotive, just before I arrived at the grounds, a piece of cinder flew into my eye, and it became so painful that I finally called at a doctor's office. He removed it, and applied some eye-water to allay the irritation; he also looked after the eye that day and the following; but the charge was only 25 cts. Very good meals may be had for 20 cts.; or you can go to the bakery and buy what you choose, taking nothing and paying for nothing that you do not wish. Or if you desire to live cheaper still with a little coal-oil stove, you can buy whatever you need at the butcher-shop, fish-market, bakery, etc., and live about as cheaply as you can at home. Come to think of it, you can have many things even cheaper than you can get them at home. I greatly enjoyed having an abundance of excellent fresh fish during my stay on the grounds. Right near the Auditorium are three tanks of ice water. A pipe runs away out into the lake, and a steam-engine pumps up water, which is distributed all over the grounds through appropriate pipes. As these pleasure-grounds are in use only during the summer time, the pipes lie on top of the ground. These pipes sometimes become very warm in the sun, especially those that are not drawn upon sufficiently to keep the water moving; and there were quite a few jokes about having *hot* water at Lakeside free of charge; whereas, if you want *cold* water you must either go to the public drinking-places or purchase ice. I happened to want a piece of ice before I retired at night. After riding the wheel all day I usually become very thirsty. The keeper of the restaurant gave me a piece as large as a small pitcher. When I offered him a nickel for it he refused to take any thing, saying that ice was very cheap around there.

In the Auditorium they have the very best talent to deliver the addresses, on a great variety of subjects. But the 25 cents a day you pay at the gate covers the admission to all meetings, concerts, etc. During the first evening a concert with quite a long program was held. We first had music by an excellent band, in the open air; then we had various kinds of instrumental music in the Auditorium; a celebrated lady singer from Boston; a violinist of much repute; the Æolian Quartette, from Delaware, O., and many others. I mention these things to show the general spirit of the place. On my wheel-rides, especially when I visit places of summer resort, I become so accustomed to extortion and greed that I have begun to take it as a matter of course. Here at Lakeside there was such a marked difference that it really seemed like a glimpse of heavenly things here on earth. Let me digress a little to explain my meaning.

One day last week I visited a celebrated resort on the banks of a beautiful lake. After my wheel-ride I thought I would enjoy a good full dinner. Besides, I felt as if I ought to patronize the people who had taken so much pains to put up an attractive-looking hotel. I went up to the desk and asked the clerk where I could leave my wheel while I took dinner. He opened the gate and suggested that, for safety, I just push it inside. I thought this very kind of him, and thanked him. Then he quietly remarked he guessed he had better give me a check. I told him that, as it would not stand there more than fifteen or twenty minutes, I did not think he need to take the trouble. However, he put on his paper check; and then as he extended to me a bit of pasteboard, with the usual insinuating smile, he said, "Ten cents, please." I question right here whether a hotel-keeper has a right to charge you for checking your wheel any more than he has for checking your overcoat. Never mind. Ten cents is only a small matter, after all. But I paid 50 cents for a 25-cent dinner; and I could not get even the 25-cent dinner without repeatedly urging the waiters to bring me this, that, and the other. At first they did not see me at all. Then they had a habit of forgetting what they went for. There, there! I think I have found fault enough. I feel a little ashamed of myself after saying what I have said. But I wish you to notice the great contrast between the way they do things at Lakeside and the way they do them where the only inspiring motive is to get as much money as possible with the least expense and exertion possible. There, I have put my foot in it again in that last sentence, I fear. The speech is not Christianlike, and it is *somewhat* of an exaggeration. Well, I think I have got through, at least for the present, finding fault with such accommodations as we find in traveling.

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*At the time of the conversation above, the state of affairs at Lakeside was about as my companion stated; but the morning I left I found some one had taken a valuable hammock during the night. The thieves were heard, and they went in the direction of the broken fence, mentioned hereafter; so it would seem that, even if property does seem safe at such places, it is well to keep the inclosure in good repair. We should be careful how we invite thieving by any slipshod or unthrifty habits.

At Lakeside they have a great hotel also. It is an immense building, and it has all the conveniences of hotels that charge three or four dollars a day. I say *all* the "conveniences." I mean, so far as *I* am concerned. There was not any bar for liquors attached. There was not any case of cigars close to the desk. There were no nasty spittoons, and there were no loafers chewing and spitting, and puffing tobacco smoke in your face. The office was a clean and tidy place, with lots of pure air, and a general atmosphere of purity that to me was indeed refreshing. Not only was there no tobacco smoke, but I did not hear a single vile or uncourteous word during my stay. When we approached the dining-room, even though there were large crowds, a pleasant woman directed each one to a place at the table; and she did it with an air of refinement and cheerful hospitality such as you might find if you were to go and visit your own sister whom you had not seen for years. Then another young woman, of equal refinement and gentility, either waited on you at once or informed you she would be at leisure pretty soon. Every thing on the bill of fare was exactly what it purported to be; and the cooking was like *home* cooking. I do not know whether all the waiters and clerks at Lakeside Hotel are professing Christians or not; but to my mind they came very near being Christians in their behavior, even if it should transpire that they do not belong to any church.

One thing that pleased me at Lakeside was, the little cards told you beforehand what every thing cost; and nowhere did we find any excuses made for charging more than the price agreed on. There was also a pleasant sociability that I greatly enjoyed. People bantered each other pleasantly, who were perfect strangers, even though there were three thousand or more on the grounds at the time I was there. There were old gray-headed people sitting in their arm-chairs, and enjoying the lake breezes, while they talked over old times, etc. There were great numbers of children paddling like ducks on the sandy beach, playing all over the grounds, and I did not hear any quarreling or hard words. It seemed to be the fashion at Lakeside to be pleasant and good-natured. There was lots of fun and merriment—in fact, all kinds of games and pastimes were going on —that is, all sorts of *innocent* games. A good many of the small boys were dressed so that they could live like the frogs—in the water or out of it as the spirit moved; and a favorite joke down on the pier was, to pretend that one of the boys had been pushed overboard, especially when one of the large steamboats was unloading passengers. After a chill had gone through the crowd to think somebody had fallen off into the deep water, a mischievous urchin's face would emerge from the depths beside the pier. You could see the grin on his face before he came to the surface. One boy happened to go down head first; and when he struck the water his head pushed out the crown of his hat. This forced the brim down on his shoulders, so when he came up his eyes were just twinkling above his hat where the crown used to be fastened on.

I now wish to explain that my mission to Lakeside was to meet with the Ohio Anti-saloon League. We had stirring addresses from the representative speakers of all the temperance societies in our land; and these addresses, characterized by the same courteous bearing toward all, made me feel that Lakeside was quite different from the rest of the world. I have not space here to give even a summary of those talks. But I wish to give a few sentences from an address by the Rev. James Brand, of Oberlin. For many years of his life he has been an active, stirring exponent of temperance; but he belonged to the Republican party. He said, during the years when he was a Republican he was greatly pained by the harsh and unkind speeches that were mad because of his politics. Those belonging t other parties told him that he did not vote a he prayed; and some went so far as to intimat that he could not be a Christian and vote a Republican ticket. After studying and prayin over the matter for several long years, and after being for quite a length of time "on th fence," as politicians term it, he finally decide to support the Prohibition party. He said h thought he had been unkindly treated before because he did not see things exactly as other did; but when it first came out that he ha united with the Prohibition party, one of th nearest and dearest friends he had on eart said to him, "Mr. Brand, you are a pig-headed consummate fool." The point he made wa this: There seems to be *no escaping* thes harsh, uncharitable flings. No matter *wha* party a man belongs to, he must meet them Is this right? Is it brotherly? Is it Christian like? With the progress that is being mad everywhere else, ought we not to rise abov such foolish, narrow-minded, harsh judgments The whole tenor of the addresses seemed finally to run in this line. People from all politica parties, and great leaders from all temperanc societies, united in a determination to worl against the saloon without questioning a man' individual convictions, or asking what politica party he supports. It seemed to me as if Lakeside was just the place to encourage such sentiments.

Before closing I wish to mention a little conversation I had with one of our former pastor who was spending his vacation, and recruiting at Lakeside. I happened to remark that th fence surrounding the ground was in man places in very poor condition. Pickets wer off, and one could, if he chose, get in withou going to the gate and paying 25 cts. Rev. Mi Plass, my companion, suggested something lik this: "Brother Root, does not this point out significant fact? If somebody should succee in getting in here by crawling through th fence, would he feel at home, or satisfied? Would he not find the company so uncongenial that he would very soon be sneaking out in the same way he got in? And may not this thought give us a glimpse of something what heaven will be like? Is it not true that there is a class of humanity that would not be satisfied with heaven? They would find nothing congenial, and they would want to get away if they should by chance get in."

> And there shall in no wise enter into the city any hing that defileth, neither whatsoever worketh ibomination, or maketh a lie; but they which are vritten in the Lamb's book of life.—REV. 21:27.

NOTES OF TRAVEL
BY A. I. ROOT.

HOME FROM LAKESIDE.

The steamer dropped me at Sandusky about o'clock in the morning. You may remember hat, on my way up, I got into Sandusky just s the steamer was about to leave the wharf; nd, although I did not have any time to spare, ny eye caught sight of some exceedingly beauiful foliage plants on the public square of andusky, besides some dainty little beds of olor down near the steamboat-landing. The ay was exceedingly hot, dry, and dusty; but hese little bits of green lawn, with ornamental oliage plants, with their beautiful colors, resh, bright, thrifty, and luxuriant, seemed to ne like bright oases in the desert. Well, on his, my return trip, I had more leisure to exmine them. I do not know the names of all f those plants, but there was a little low boraer of bright red; then some beautiful specinens of coleus, and the whole was set off by ome brilliant tufts of what we used to call prince's feather." We have all seen these efore; but in Sandusky they have them aranged with an artistic effect that gave me a hrill of delight as I looked upon them. One rouble in having these foliage-beds, or ribboneds, in private homes is, that they must have onstant watering through the sultry months; nd unless somebody is employed to see to this, hey are very apt to be neglected. May be I ad become wearied in looking at the wonderul things at the World's Fair; but, so far as I an recollect, there was not a piece of work here to compare with these little bits of artisc beauty in the city of Sandusky.

My first point was Castalia, Erie Co. The oad is very fair (most of the way over a stone ike), except that the loose stones were so umerous that it took nearly all my time to eep my wheel clear of them; so I did not have nuch time to enjoy the views of the surroundng country. I remembered one of the old bee-riends at Castalia; but they told me he was hree or four miles out in the country, off from ny road. As I wished to make a train in the fternoon, I went through rather hurriedly. I oticed a millpond full of water, which looked a ttle singular when every thing else was so ried up; but I did not stop to inquire about it ery much.

In almost all the little towns I pass, I find a rowd of men in front of some corner grocery. presume I ought not to find fault, as these rowds of men are very convenient, and are uite willing to answer all my questions in egard to routes, etc. I told them I wanted to o to Green Springs, and I wished to avoid the and as much as possible. After some discussion they decided that I might take any one of three ways; but they said that, whichever way I took, I would be sorry I did not take one of the others, especially on account of the sand. It was at my tongue's end to ask if there were any remarkable springs in the vicinity; but I finally thought I would not, and rode on. They were right about the sand: it was just fearful; and the road twisted in unaccountable ways around the hills until I lost all idea of the points of the compass. As a matter of course, I became very thirsty. But the water at the wells was all exceedingly hard, and I knew from the taste that it would make me sick. How I did long for a spring of soft water, or a spring of any sort, for that matter! I have always found running water to be more wholesome than any thing from the wells, as a rule—that is, where I can find the water running just as it comes from the ground.

Clyde is a very pretty town indeed; and just in the outskirts, on the road to Green Springs, I saw about the prettiest garden that ever revealed itself to my gaze. The remarkable thing about it was, it was absolutely free from weeds, and the ground all looked as if it had been stirred that very day. During a time of severe drouth, such sights are refreshing indeed. The only person at work was an elderly woman. Very likely she had charge of the garden, and that was why it was so neat and tidy. Quite a spacious greenhouse adjoined it. But my time was too limited to stop. A little further, and the great sanitarium in a beautiful grove on a gentle hill revealed itself to my view. I wheeled in and coursed through the walks and drives, and finally brought up before the wonderful spring that has given the locality and the town their name. In a little notch between the hills was a miniature pond of water, transparent as crystal, but the transparency was an emerald green. In the deepest portion a crevice was visible in the rock, from which issued a considerable stream of water. The rate and volume of the current were evident from the sticks and weeds near the orifice where the water issued. Although the water above the crevice was said to be 17 feet deep, I think a pin could easily have been seen at that depth. The most beautiful thing about this wonderful spring is, that a sort of mossy vegetation that covers the bottom is incrusted with a mineral matter, shading from silver to gold. It looks like hoar frost of varying shades. One does not realize how rapidly the water is moving, however, until he looks at the outlet, where a good-sized stream pours forth. In fact, I am told this stream, a little lower down, turns a gristmill day after day; and the volume is sufficient to do it without the intervention of any pond or reservoir whatever. I had a great curiosity to taste these wonderful waters. There is a strong sulphur flavor, it is true; but to me it was very pleasant, especially on account of its delicious coolness. The more I tasted it, the better I liked it; and when the clerk at the sanitarium assured me that *anybody* could drink just as much as he pleased, under any circumstances, without danger, I ventured to drink a little more than I should have done otherwise. This water is said to have wonderful curative properties. I could readily believe this to be the case where somebody happens to *need* a good dose of the minerals contained in the water. In fact, I am pretty sure I should find lots of health and enjoyment in staying there a week, and drinking and bathing in those wonderfullly medicated waters—medicine from God's own laboratory. I found, however, I had fully 30 miles to make to reach the station to enable me to get home that night.

Before I left the town of Green Springs, however, I was told that, almost on my route, was a similar spring not more than a mile or two away from the one I had visited. I found it, out in the fields, beneath the branches of a spreading white-oak. One could scarcely believe that such a beautiful spring was to be found in that field; but just as you pass the oak-tree the ground dips down suddenly, and a dark-green pool with a swift-running stream meets your gaze. I knelt down on some rails placed over the spring, and dipped the water up with my hand, and drank again and again. I am afraid I drank still another "again," come to think of it. Then I hustled off for my station. I passed through the towns of Republic and Bloomville, Seneca Co., and reached Lykens just at the time the local freight was due. I had ridden fully 50 miles without having had a particle of lunch of any sort, unless you might call the water of Green Springs a lunch. Someway I did not feel very hungry, neither did I feel tired. I had enjoyed every mile of the whole fifty—yes, even the worst sandy miles. I arranged to have some dinner at a house near by the station, the agent kindly agreeing to notify me when the train was heard coming. Well, I not only got my dinner, but I sat on the platform and waited *three hours* because the local freight was behind time. It was 65 miles to my home. While sitting on the platform I could have made fully half the distance on the wheel; but I expected to get home that night, providing the train was on time. Fifty miles and 65 miles make 115. I calculated that, if the railroad company would give me a lift of about 35 miles in the middle of my ride, I should make it easily. I did not get home, however, until the forenoon of the next day, and then I lay abed a part of two days as a result of having drank too deeply of the waters of—not Lethe, but from the matter-of-fact Green Springs. May be I am blaming Green Springs more than they deserve. Perhaps it was the limestone water I drank while so very thirsty, and may be it was the consequence of riding 50 miles without food. Still again, it might have been eating too many luscious pears that a good lady was kind enough to offer me when I could not drink the well water because it was so hard, nor the cistern water because it was so bad-tasting. Never mind. Could I have had an abundance of soft spring water all along my route, I think I should not have been sick at all. By the way, the clerk at Green Springs told me theirs was *not* the largest spring in the State of Ohio; for he said that, at *Castalia*, Erie Co., the very town I had passed through, there was an immense spring of remarkably pure soft water—so fine, in fact, that a large company is utilizing its cool pure waters for raising trout, and for carrying on extensive trout-fisheries, and yet I did not know any thing about it.

Is there not a wonderful chance to do temperance work along the line of pure water and drinking-places, and utilizing to the fullest extent God's gifts along that line? Surely *all* temperance organizations can unite in this. See the following from a recent Cleveland daily:

> The drinking-fountain placed at the corner of Wilson and Euclid Avenues by Miss Anna Edwards, is daily proving its usefulness during the warm weather. It is doing very good work, and, from figures furnished by the police, it appears that at least 1000 persons drink from it during every warm day. The remark is frequently heard from the men who stop to drink, and who are largely workingmen, that they have saved five cents which would otherwise have gone to the saloon, and which they can take home to their families.

HIGH PRESSURE GARDENING

TILLAGE: CAN WE OVERDO THE MATTER OF WORKING OUR GROUND THOROUGHLY IN DRY WEATHER, BEFORE PUTTING IN THE CROP?

Our readers may remember that, about a year ago, I spoke of the very thorough preparation friend Terry was giving his wheat-ground. In fact, when the ground seemed to me almost perfectly pulverized and firmed, he was still going over it with the teams, making it finer and smoother. I ventured the suggestion that he was overdoing the matter, especially as a farmer in our county said he got better wheat with ordinary preparation than where he made the ground so exceedingly fine and soft. Well, I have been watching that wheat ever since, and just now friend Terry gives me his report after thrashing.

> That wheat you looked at yielded an even 50 bushels per acre. North lot, our poorest land, over 44; average over 47, possibly near 48, when we get cleaned up. Did I "overdo the tillage"?—9 or 10 bushels more than I ever raised before!
>
> Hudson, O., Aug. 14. T. B. Terry.

The above is an important fact, and has a special bearing on this matter of preparing the ground for crops even now. In fact, we are just now preparing the ground for strawberries, pearl and multiplier onion-sets, spinach, winter radishes, etc. How much shall we work the ground during this dry weather? My opinion is that, where teams have nothing else to do, it will pay us to keep them going until their feet have been set on almost every inch of the soil.* The ground will show the advantage of it next season. I know from experience. When every lump has been mashed up, then the little roots can thoroughly explore every bit of the soil and appropriate all the food they need that is in the soil. Besides, what a pleasure it is to put out plants or put seeds into ground that is fine, soft, smooth, level, and firm!

RAISING AND PROPAGATING RASPBERRIES.

The soil should be a rich light loam; bu raspberries seem to do well on well-drained clay. Plow and drag as for corn or potatoes Mark out 7 ft. one way and 3 the other. Furrow out with a big plow so as to give a leve place for the roots. If you use a shovel-plow o marker only, the ends of the roots are apt to stick up. Make the mark from 4 to 6 in. deep Set the plants in the check row, and cove about one inch deep. The plants are easily smothered at first. I have lost many by green hands covering too deep. When the plant come up you can cultivate the mellow earth in and around them until the furrows are full This will make the plants stand up. If they are set too shallow you will be continually annoyed by their falling down, especially when loaded with fruit. We put beans or potatoe between the rows the first year. Keep the ground clean and mellow all summer, as the plants do most of their growing in August and September. If you are anxious to grow sets pull out the crown when about a foot high also pull off the ends of the strongest lateral when about a foot long; these in turn wil branch and make many tips. Last week we ut one horse to the big plow, and turned a urrow up to each row, and broke up the mid-lle with a double-shovel plow. This buried he weeds, and put the ground in excellent con-lition for layering tips.

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*Of course, this won't do at all where the ground is the least bit wet. In the spring of the year I hav done harm by this very excessive tramping when the ground was not sufficiently dry to bear it.

Although the ground is very dry we began etting tips Aug. 14. We used to cover the ends vith a hoe, but had much trouble with the nds growing out. We now take a spade, set it n straight, press forward, put the tip in be-ind, withdraw the spade, and firm the earth vith the foot. It is a waste of time to pull own and cover tips that have not yet reached he ground, as the wind soon works them loose. he old canes and weak new canes have all een cut out and burned. When all the tips re set, no more attention is needed until pring. This gives the berry-grower time to o something else 7 months in the year.

I teach school, as I have been doing for 20 ears. Berries rest me from teaching, and eaching rests me from berries. Both are leasant and profitable. I love the work; but uth compels me to say that the inspiration aries largely with the cash income.

The fruit-grower in general owes much to uch men as my friend A. I. Root, who spares either time, money, nor his wheel, in finding ut and testing the newest varieties, and dis-arding, probably, nine-tenths of all varieties ivestigated; offers to all the results of his bor at prices far less, often, than he paid for rts that proved worthless. A person of limit-d means need make few mistakes in getting a art in fruit-growing, if he will only read.

In the spring we take up sets as early as pos-ble; trim back the laterals from 6 in. to 2 ft., cording to size and vigor of cane; plow down e furrow we threw up for winter protection; ltivate thoroughly until the berries are near- ripe. The fruit is less likely to be sanded if o more cultivation is given until after picking.

The first crop is always much damaged by e low bushes being beaten into the dirt, and e berries becoming sanded. This year we ld sandy berries at 2 cts. per quart less. You n wash them, but they never look so well. n this account, and because we never get ore than a third of a crop the first year, I ould never think of doing as Mr. L. B. Pierce ggests: Raise only one crop and then plow nder.

W. R. GRANNIS.

Lodi, O., Aug. 15.

HE STERLING, TIMBRELL, AND OTHER STRAWBERRIES, ETC.

Friend Root:—On page 668, Aug. 15, you say u would like to hear from parties growing the terling strawberry. I purchased of you the terling, which, I am sure, is true to name. rowing side by side with a berry here called hampion, which is largely grown in this neigh-rhood, I find they are the same berry in fruit, lor, leaf, and flavor, under different names. had them examined by a representative of eter Henderson & Co. and Mr. E. Durand, an iginator of many new varieties of strawber-es. The Champion was originated from Soto years ago. Mr. Durand came to the same nclusion as myself. I find they do excellently ith me in rich heavy soil.

About the Timbrell, I have this to say: They e perfect in every respect but the color, which worse than any berry I have, and I grow ore than thirty varieties. I took a crate of e very best, went to New York city, and tried sell them by their flavor; but every one con-mned them before they tried them. Our ncy berries are sold by their looks. The imbrell might do very well for private use. e raised our Timbrells in heavy soil, very avily manured, and mulched with salt hay, so that the ground is not at fault. This has been a very bad season for growing plants. We have not had rain of any account since last May. We practice fall planting almost exclusively, from about Aug. 15 to Sept. 15, and can see little difference in the yield the next season. The spring-set plants may have a few more berries, but the fall-set plants have better size. In fall we plant in double rows about a foot apart each way, and always take the plants from the plantings of the previous fall. In that way we always manage to get stronger plants than spring-set beds. If we are short of space we plow up an old bed after fruiting, put on fresh manure, and plant new strawberries on the same ground. There are some strawberry-beds around here where there have been nothing but strawberries for the last 20 years. This may not pay in localities where land is cheap; but land here is worth from $500 to $1000 an acre.

I read your favorable report of the Industry gooseberry. We grow Industry, Triumph, Downing, and Smith's Improved, side by side, but we like Triumph and a seedling of our own best. They have a smoother surface, and just as large a berry as the Industry. Most of our gooseberries are sold when green, and we never succeed in ripening the Industry naturally, as they all fall from the bush before being fully ripe, while the others, just as large, hang on until ripe. We sold large gooseberries, green, last year, at 20 cts. per quart by the crate, while this year the best brought only 14 cts.

We always read with interest your bicycle tours, and what you have to say on fruit and plant raising.

CHAS. MOMM.

Irvington, N. J., Aug. 19.

SPECIAL NOTICES FROM BUSINESS MANAGER

WHAT SHALL WE PLANT IN SEPTEMBER?

I presume the very general extremely dry weather has made gardeners as a rule a little disheartened; but it would not be strange at all if those who keep up their courage, and go right on planting as if the weather were favorable, should prove to be the ones that reach large profits. Let us see. We can put in Eclipse beets now that will be just right for table use before they are killed by frost. In a couple of weeks more it will be time to sow seed for cabbage-plants that are to winter over in cold-frames. Better have the ground ready, and have it near where there is plenty of water, so as to keep the plants watered if it does not rain.

Very large celery-plants can still be put out if you have rich ground, and water to keep them going. In fact, we have an order for 100 plants on hand now, to be shipped Monday, Aug. 27.

Corn salad may be sown now; and as it is very hardy it will grow nice salad through the fall, far into the winter, almost without protection.

Now is the time to sow your Grand Rapids lettuce seed in order to have it ready to market by Thanksgiving time. Start your seed where it can be kept going by plenty of water. The sub-irrigation plan, as used by the Ohio Experiment Station, works grandly with lettuce

All kinds of radishes will produce a nice crop if sown now; but the Chinese Rose Winter is generally considered the finest for late sowing.

Spinach can be sown all through the month. If you can manage to get it almost ready to run up to seed before cold weather comes, it will keep growing larger during the cool chilly weather, and postpone sending up seedstalks until spring. If you can hit it just right, you may have spinach almost all winter, almost without protection.

Purple-top White Globe turnip will sometimes make turnips large enough for table use, if sown on good ground the first of September.

Last, but not least, now is the time to plant out all kinds of onion-sets. Since we have had such fine success with the American Pearl and the English White Multiplier, we have made experiments with other kinds of onion-sets, and some of them stand the winter nicely. We have on hand the following different kinds of onion-sets for September planting. These sets are of our own growing, and very carefully and thoroughly cured, and will reach our customers in excellent condition:

Winter (or Egyptian) onion-sets. The hardiest onion known. Qt., 5 cts.; peck, 35; bushel, $1.00.

American Extra Early Pearl. The finest early onion in the world, and perhaps the first large nice onion to ripen. Qt., 35 cts.; peck, $2.25; bushel, $8.00. At present writing, no other grower has published prices, so far as I can determine; but if any reliable seedsman offers the genuine American Pearl at less prices than the above, I will make our prices to correspond.

White Multiplier. Pint, 10 cts.; quart, 15; bushel, $3.50. We have now grown this three seasons, from sets planted in September, and have had no failure. Remember, the above prices are for small onions. These small onions produce big ones next season, like the Pearl, though some of them may split up and divide. If you wish to raise small onions or sets for sale, you will need to plant the large Multiplier; and we offer the large ones at just half the above prices. Our sets are all carefully graded by means of appropriate sieves. In addition to the above white onion-sets we have the White Victoria. These are much like the American Pearl, except that they are round instead of flat, and grow rather larger, and bear a little later. We are not as sure they will winter over safely as we are of the Pearl.

Yellow English Multipliers, or Potato-onions. These are like the White Multipliers, except that they are yellow instead of white. Prices will be just half those of the White Multipliers. Please notice, this brings the prices of the large-sized yellow Multipliers at only 88 cts. per bushel. Is not that cheap enough? The above prices are only for orders received before our stock is exhausted. When we are compelled to buy from other parties we can not agree to make the above low prices, especially on the Multipliers.

Yellow Danvers onion-sets. Qt., 20 cts.; peck, $1.50; bushel, $5.00. These are very hard and firm, screened from chaff, and nicely sorted in sizes. All the onion-sets mentioned above will be half price if over ¾ inch in diameter, or about that. The Yellow Danvers will winter over safely in some localities and on some kinds of soil. Where you want very early bunch onions they are sometimes planted in September—that is, in localities where they have tried September planting, and know it succeeds. Perhaps you ask, "Why not wait till spring with all of them?" First, because they are very much further advanced where they are in the ground over winter; secondly, most people have much more time to prepare the ground thoroughly, and do the work nicely, in the fall. Perhaps the *winter* onion-sets are the only ones that *always* succeed *everywhere;* and the price is now so low that everybody can afford to have them. Where onions are to be raised under glass or in greenhouses, plant them in September and move them into your hot-beds, cold-frames, or glass house just before the weather freezes up hard, or during open spells in the winter.

For prices on seeds mentioned above, see our seed catalog for the fall of 1894, sent free on application. Onion-sets by mail at 10 cts. per quart extra for postage.

Sow seven-top turnip this month. Seed, 10 lbs., 15c per lb.; 1 lb., 20c; oz., 5c; mail, 10c per lb. extra.

Winter rye, for fall sowing, 65c per bushel; extra for sack to ship it in.

While this severe and extended drouth prevails, it will be out of the question for us to ship any strawberry-plants except the Timbrell, which are in our plant-beds, and kept growing by watering.

CRIMSON CLOVER.

It is a little funny that this plant has been among our list of honey-plants for perhaps ten years past or more. It has been called Italian or scarlet clover. Seven or eight years ago I had a patch of it near the road, and it grew so rank and thrifty that farmers stopped to look at it, making many inquiries; and some of them insisted that it must be valuable for feed and for turning under; but somehow everybody seemed to be slow in testing it until within the past two or three years; and it just now seems to promise wonderful things for the farmer. Some of the agricultural papers state that, if it is sown on fair soil during either August or September, 10 to 15 lbs. to the acre, it will make growth enough to stand the winter safely, and will be worth for plowing under, and nothing else, as much as several tons of manure next spring. And all this great boon is coming with little or no reference to it as a honey-plant. I have been watching anxiously its development until it seems a pretty well settled fact that it is certainly very valuable. The boom has had the effect of putting seed on the market till the prices are very low. A favorite method is to sow it broadcast among the corn, just at the last cultivating. Or you can put it on any ground that has been vacated by any sort of crop; or sow it among your raspberries, blackberries, etc., and turn it under by plowing a furrow or two up against the plants, when it gets rank enough in the spring. We are prepared to ship the seed promptly at the following greatly reduced prices: By mail, post paid, 1 lb., 25 cts.; 10 lbs., by express, $1.50; 1 bushel, 60 lbs., by freight or express, $4.50; 1 bag, 2½ bushels, by freight or express, $10.00.

THE HONEY MARKET.

Comparing the reports of the season's honey cro with the market report of prices gives a vivid picture of the very depressing effect on prices of th close times through which we have been passing Notwithstanding a very short crop, judging fron reports, we have never known prices to be lower s early in the season. Last year those who got thei honey to market early secured the best prices, as rule. If times improve from now on, as we hop they will, the demand for honey, and price, mus also improve in view of the short crop. Do not b in haste to sell at ruinously low prices what littl honey you have secured, but help to tone up th market by a little more independence in asking fair price for your product. With our present su ply, and the limited demand, we can not buy an more of either comb or extracted for the presen We have over two tons of very thick and choice e tracted, in 60-lb. cans, which is clover and basswo mixed, claimed by shippers to be more than ha clover. Price for single can, 9c; per box of 2 can 8½. Lots of 2 cases, 8c per lb.

Fancy white comb honey, mostly basswood, wi or without cartons, 1-lb. sections, 24-lb. cases, 1 for less than a nine-case lot. By the crate of 9 case 15c per lb. Those wanting larger lots will do well write us, as we know of lots in the hands of shippe which we could have shipped direct, thus savi one freight and the attendant risk in handling.

MORE ABOUT BARRELS FOR SHIPPING.

We received a large barrel of honey from Loui ana, which reached us leaking. As the shipper d not give exact weight we could not tell how mu was lost, but probably over 50 lbs. We cooper the barrel, putting on one new hoop. It stood our building several days without further leakin We shipped to Mansfield, a short distance, requiri only one transfer and two days in transit. When reached there, over two-thirds of the honey we sta ed had leaked out. The barrel, when we started was in as good order as such a barrel could be. do not blame the Southern producers for trying get as cheap a package as they can for their hon considering the low prices they get for it; but I f many carry it too far, and use barrels which are strong enough to hold honey. There are very f uses to which barrels are put that make such heavy strain on their strength as shipping hon which is almost 50 per cent heavier than water other similar liquids. If you must use barrels ship honey in, be sure they are strong enough, a well coopered, and waxed inside, to prevent leaki

STURWOLD SHOW-CASES.

We have just made up a new lot of these cas which you will find on page 30 of our catalog. Y will find them a great help in working up a dema for honey in your home market, if placed in a c spicuous place in one of the leading grocery sto

Price of the case complete, finished, plain gla $4.00. With front glass lettered with your name a address, 50 cts. extra. Cases shipped with glass place, or packed separately, as you prefer. Ca in the flat, not finished, without glass, $1.50; w glass, $2.50. Upper and lower frames nailed a glued together at this price.

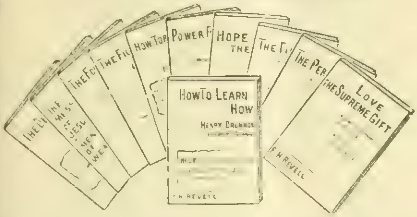
EVERY-DAY RELIGION.

This is a later work by the author of The Chris- ian's Secret of a Happy Life. Many of our readers re familiar with that work, we having sold up vard of two thousand of them. This later work vill be appreciated fully as much. The secondary itle is, The Common-Sense Teaching of the Bible. t is a most practical work which should be read by very earnest Christian. It is in cloth covers, has 50 pages, and will be sent postpaid for 90c; regular rice $1.00. With other goods by express or freight, t 85c. Given free postpaid for 2 new subscribers GLEANINGS with your own renewal and $3.00.

ILLUSTRATED PILGRIM'S PROGRESS.

We have secured some of a very fine English edi- on of Pilgrim's Progress, illustrated with over a undred very realistic pictures The book is 16mo, rinted on very fine paper, containing 384 pages, nd the illustrations are the most striking, and true the characters represented, that we have ever en in the most expensive editions. The binding is f cloth, richly illuminated in six colors, with title rich goldleaf on back and side. There is no paper asted in wide margins; in fact, there is so little imming that some of the leaves have to be cut art. It is a book of such quality and make-up as easily bring $1.50 at retail a few years ago. In is day of cheap books and low prices it is neces- ary to close out the last of the edition awaw below tual value. We offer these at 50c each; by mail, c extra. We will give one free postpaid for two w subscriptions to GLEANINGS, with $2 00; or for e new subscription and one renewal paid in ad- ance with $2.00, and 10c extra to cover postage on e book. Of course, every one knows what Pil- im's Progress is, as, next to the Bible, it is the ost widely read book in the English language.

A DOZEN ATTRACTIVE PAMPHLETS.



They are not only attractive, but so valuable and lpful that they should be read by every one who sires to improve his life, and live happier; and o does not have such desire? Doubtless many ve read "The Greatest Thing in the World; or, ove the Supreme Gift," by Drummond; and others ve heard of it. It is something that will do us od to read often. "Love is the fulfilling of the w;" and the more of it we can get into our lives, e better for the world and for us.

These little booklets are 16mo, 32 pages, with ndsome light-blue parchment cover, and nice ar print. Price 10c each, or 90c per dozen, any e or assorted books, postpaid or with other goods. blisher's price is 20c each.

1. Love, The Supreme Gift: The Greatest Thing the World. By Prof. Henry Drummond.
2. The Perfected Life: The Greatest Need of the orld. By Prof. Henry Drummond.
3. How to Learn How. Addresses by Prof. Henry ummond, I. Dealing with Doubt. II. Prepara- on for Learning.
4. Power from on High: Do we need it? What is ? Can we get it? By Rev. B. Fay Mills.
5. The Message of Jesus to Men of Wealth. A act for the Times. By Rev. George D. Herron. troduction by Rev. Josiah Strong, D. D.
6. The First Thing in the World; or, The Primacy Faith. By Rev. A. J. Gordon, D. D.
. Hope: The Last Thing in the World. By Rev. T. Pierson, D. D.
. The Fight of Faith and Cost of Character. Talks Young Men. By Rev. Theodore L. Cuyler, D. D.
. The Four Men. The Aspect of Man from Four andpoints By Rev. James Stalker, D. D.
0. How to Become a Christian. Five Simple lks. By Rev. Lyman Abbott, D. D.
1. The Dew of Thy Youth. A Message to "En- avorers." By Rev. J. R. Miller, D. D.
2. Temptation. An Address to Young Men. By v. James Stalker, D. D.

GIVEN AWAY FREE.

To any one who sends us the name of a new subscriber for 6 months, with 50 cents, we will send any one of the above pamphlets, your selection, postpaid. For a new yearly subscription, with $1.00, we will send any three of the above books free, postpaid; or to any present subscriber who sends $1.00 to renew his subscription *before* the time paid for is up, or who, being in arrears, will send all back dues, and also for a year in advance, we will send free one, your choice, of these booklets.

DRUMMOND'S ADDRESSES.

Besides the booklets above we have Prof. Drummond's addresses, 6 in number, with biographical sketch making a 16mo book of 140 pages, bound in board covers, part cloth and part paper, in two shades of blue, neatly figured, making a very handsome book. Price only 30c postpaid, or 25 if sent with other goods. Or we will give one free postpaid for a new subscription to GLEANINGS, with $1.00.

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS is the best advertising medium we have ever seen. **AUGUST GOETZE & SON.**
Wheeling, W. Va., Aug. 1.

Oh, my! but your bee-supplies work nice you sent me. The 25 pieces for tops are just the thing, so nice and well seasoned. **M. N. SIMON.**
Bloomdale, O.

Goods came all right in nice shape. The polished sections can't be beat. Maple sugar was very nice; only fault, there wasn't enough. **R. M. LEWIS.**
Omaha, Neb., April 28.

The hives, etc., you shipped June 26 were received July 27, all in good shape. I am well pleased with every thing. These frames—well, there is some sense to them; and now if the bees will like the hives as well as I think I shall, I shall want more of them. **HENRY HUNTSINGER.**
Star Valley, Kan., Aug. 4.

WHY THE HOME OF THE HONEY-BEES WAS RUNNING NIGHT AND DAY.

I got a lot of your dovetailed hives of Jos. Nysewander. The quality of the goods tells why your factory was running night and day best goods I ever saw. Want more next year **O. H. HYATT.**
Shenandoah, Iowa, July 12.

The goods I ordered May 4, shipped May 11, were received yesterday, and opened to day. They are all right. Freight charges are satisfactory. On the whole I am well pleased. The sections are perfect beauties, cut from nice white wood, very smooth, and the size and lengths are correctly measured.
Flintstone, Md., May 26. **EPHRAIM LEE.**

IT affords us great pleasure to find that we are not the only editors of bee-journals who enjoy cycling. The following pleasant notice comes from the *American Bee-keeper* for August:

> We notice with pleasure the enthusiasm of A. I. Root on bicycle matters; and his descriptions of his trips on his wheel interest us very much. We have never mentioned the fact, but both members of our firm are enthusiastic wheelmen, the writer being a "century rider." The senior member rides a Victor, while the writer now mounts a 22-pound Rambler. He had a new Monarch stolen from him on the street a few days ago, and no trace of the thief or wheel can be found. It was a Monarch wheel, No. 8306, with a new cyclometer on it. By the way, Bro. Root, by all means put on a cyclometer, if you have not already done so. You will enjoy your riding much more, as you can then measure the distances exactly.

PATENTS

Careful attention given to the prosecution of business before the U. S. Patent Office. All business treated as *strictly confidential*. No charge made for services in prosecuting application, until the patent is allowed. Send for "INVENTOR'S GUIDE."

FRANKLIN H. HOUGH.
925 F STREET, WASHINGTON, D. C,

☞In responding to this advertisement mention GLEANINGS

Every Farmer

Ought to read the Rural New-Yorker.

(Published weekly.)

It is the business farmer's paper, and a most reliable authority on agricultural and horticultural subjects. Frauds and humbugs fear it. ONLY $1 A YEAR. Send for sample copy to **THE RURAL NEW-YORKER. New York.**

We have made arrangements so that we can send it and GLEANINGS for $1.75 a year.

☞In responding to this advertisement mention GLEANINGS

CAPITAL

Bee, Stock, & Poultry Farm.

W. D. SOPER & SON, Proprietors.

Breeder of Pure Italian Bees, Toulon Geese, $2.00; Pekin Ducks, $1.00 each; Golden Wyandottes, Poland China Swine Barred Plymouth Rocks, S C Brown Leghorns, etc. Bees in new L. hives, $3.50 and $4 0) per colony. Chicks, $1.00 apiece. Eggs in season, 5 cts. apiece. except geese, which will be 15 cts.

Reference, Union Bank.

W. D. SOPER & SON, Jackson, Mich.
Farm Range. Box 1473.

☞In responding to this advertisement mention GLEANINGS.

Daughters of one of *Doolittle's* best 5-banded breeders, mated to the choicest drones from Jennie Atchley's 5-banded strain, thereby securing a direct cross with the best 5-banded stock obtainable. Untested, 1 to 100, 50c each; warranted, 65c each, Safe delivery and satisfaction. Money-order office, Monongah. P. O., Worthington, W. Va. **L. H. ROBEY.**

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds
W. Atlee Burpee & Co., Philadelphia, Pa.

5 = Banded Untested Italian Queens

For the balance of the season at 50 cts.; tested, $1.00; breeding-queens, *the very best*, $1 50. These are Doolittle s strain, and are golden beauties. Fine tested, from imported Italian mothers, 75c. Safe delivery. Money order office, Decatur.

Cleveland Bros., Stamper, Newton Co., Miss.
Will you please mention GLEANINGS ?

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**
1-23o Ottumwa, Ia. South side.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis.

BBB'S!

If you keep *BEES*, subscribe for the **Progressive Bee-keeper**, a journal devoted to Bees, Honey, and kindred industries. *50 cts. per year.* Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address

LEAHY MFG. CO., HIGGINSVILLE, MO.

90 PER CENT PURE

Business Queens.

On account of a few hybrid drones that may b
flying in the air this year I will sell my all-golden-t
tip queens, untested, unwarranted, but am satisfie
90 per cent are purely mated and will produce 4 an
5 banded bees, at 50 cts. apiece. Order some, tes
them, and be convinced.

WM. A. SELSER, Wyncote, Pa.

☞In responding to this advertisement mention GLEANI G

California Dried Fruit.

I have for sale over two tons of dried Apricot
and am permitted to refer to A. I. Root in regard
the good quality of my product. Price—8 cts. p
lb. here; or if you will write me where you are loca
ed I will give prices by the barrel, delivered at yo
station. ***WM. STEVENSON,***
80 Orange Grove Ave. ***Pasadena, Cal.***

TESTED ITALIAN QUEENS, $1.00 eac
Select tes
ed, $1.50; untested, 65 cts. Two-frame nucleus, wi
tested queen, $2.00; with untested queen, $1
Queens ready April 1.
Stewart & Cooper, Quebeck, Tenn.

Mother Bees.

If you wish the best of queens, or mother be
send me your orders. Untested queens, 3 or 5 bar
75c each; $4.25 for 6, or $8.00 per dozen. Tested
band queens, $1.50 each; fine 3-band breede
thoroughly tested, the *best*, $5.00 each; straig
5-band breeders, faultless queens, $10.00 each. Roo
goods, Dadant's foundation, and Bingham smoke

Jennie Atchley, Beeville, Bee Co., Tex.

☞In responding to this advertisement mention GLEANING

Warranted Queens, 75c.

Five-band strain, bred for *business*, six
$3.25; dozen for $6.00. See former *ads.*, and se
for circular. Safe arrival and satisfaction *gua*
anteed. **J. B. CASE, Port Orange, Fla**

PATENT WIRED COMB FOUNDATIC

Has No Sag in Brood-frame

Thin Flat - Bottom Foundati

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually wor
the quickest of any foundation made.

J. VAN DEUSEN & SONS,
12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y

☞In responding to this advertisement mention GLEANIN

SPECIAL OFFER FOR TH
NEXT 60 DAYS.

Untested 5-banded queens, 50 cts. each; six, $3.
warranted, each, 60 cts.; six, $3.50; tested, 75 cts.
Reference, A. I. Root.

Leininger Bros., Ft. Jennings, O.

☞In responding to this advertisement mention GLEANIN

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smoke

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepe

Square Glass Honey-Jars.

REDUCTION.

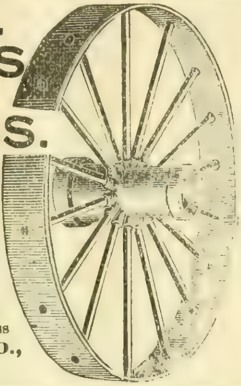
Have just received a carload of Honey-jars which we offer at a discount of 5 per cent on all orders of two gross jars or over, and at a discount of 10 per cent on all orders of five gross or over, off list prices. Send for catalog.

CHAS. F. MUTH & SON,

976 & 978 Central Ave., Cincinnati, Ohio.

☞In responding to this advertisement mention GLEANINGS.

METAL WHEELS for your WAGONS.



Any size you want, 20 to 56 in high Tires 1 to 8 in wide—hubs to fit any axle. **Saves Cost** many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires. Cat'l'g free Address

EMPIRE MFG. CO.,
Quincy, Ill.

☞In responding to this advertisement mention GLEANINGS

Promptness is What Counts.

WARRANTED PURE HONEY

Honey-jars, Shipping-cases, and every thing that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping-point in the Country.** Dealer in Honey and Beeswax. Catalog free.

WALTER S. POUDER,
162 Massachusetts Ave., Indianapolis, Ind.

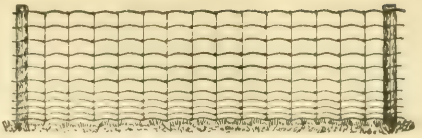
Please mention this paper

Cash for Beeswax!

Will pay 22c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 30c per lb., or 32c for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio



Canada Heard From.
New use for the Page.

A Canadian farmer was in need of a **Foot Bridge** and the Page agent was equal to the emergency. A five ft. fence for the bottom and three ft. for the sides stretched over 100 ft. span proves a grand success. With four men in the middle it sagged only 10 in., coming right up to place when relieved. Owner is so well pleased, he tears down 80 rods of good board fence to make room for Page.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

Bees and Supplies

Always on hand. Send for circular.

I. J. Stringham, 105 Park Place, N. Y.

☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN QUEENS

We have made arrangements whereby we can furnish Carniolan queens at the same prices as for Italians; viz., untested, during this and the next two months, 75 cts. Select untested, $1.00. Tested, $1.50. Select tested, $2.50. We place our own guarantee upon these queens, and feel sure they will give satisfaction to those who desire the gray Carniolan stock. We are also prepared to furnish untested three-banded Italians and four and five banded queens at the same prices. We will also furnish tested Italian queens of last year's raising at the same price as untested as long as they last. Any of the above-mentioned queens, of the plain untested, or last year's tested, and one new subscription to GLEANINGS, $1.50.

A. I. ROOT, Medina, Ohio.

THE VERY BEST GRADES AND WARRANTED TO BE PURE

HONEY

ADDRESS A. I. ROOT MEDINA OHIO

Daughters of one of *Doolittle's* best 5-banded breeders, mated to the choicest drones from Jennie Atchley's 5-banded strain, thereby securing a direct cross with the best 5-banded stock obtainable. Untested, 1 to 100, 50c each; warranted, 65c each. Safe delivery and satisfaction. Money-order office, Monongah. P. O., Worthington, W. Va. **L. H. ROBEY.**

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

FULL LINE OF

BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

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HONEY COLUMN.

CITY MARKETS.

DENVER.—*Honey.*—Our market so far has been supplied by home producers, but we have a large mountain trade that requires a No. 1 grade, which we have not been able to get or produce this season. Best consignments of No. 1 comb honey, in 1 lb. sections, put up in 24-lb. cases, suitable for putting in cartons, sell readily at 12½c. Second grade, in cases, at 10c. No. 1 extracted honey, in 60-lb cans, 7; No. 2, 6. Beeswax, 25. We can handle to advantage during the season a large quantity of fancy comb and extracted honey.

R. K. & J. C. FRISBEE.
Sept. 8. Denver, Col.

CHICAGO.—*Honey.*—Choice lots of white comb sell at 15c per lb. It is a little early for active sales, but a good time for forwarding, as there is usually less breakage at this time of the year than later. Extracted, 5@7; white, in cans, selling at top price. Beeswax, 25. R. A. BURNETT & CO.,
Sept. 7. 163 So. Water St., Chicago, Ill.

BUFFALO.—*Honey.*—The demand for honey is as yet moderate, owing to the liberal supplies of fruit, etc., and the warm weather. As soon as these early fall fruits are done and the weather has become considerably cooler, we anticipate quite an improvement and a nice demand for honey. A few sales of fancy No. 1 comb are being made, mostly at 12c, occasionally 13@14. We can handle quite a large quantity right along for all that it can be made to realize in any market. We will advance 10 per cent per lb. on almost any amount of fancy honey, and proportionately on other grades. We advise shipping it only by freight. BATTERSON & CO.,
Sept. 7. Buffalo, N. Y.

CINCINNATI.—*Honey.*—Demand has been fair of late for extracted honey at 4@6 cts. on arrival. There is a good demand for comb honey at 14@16 cts. for choice white in the jobbing way. Supply good. It is unwise counsel to bee-keepers "to hold on" to their honey. Our experience of the past is ample proof that comb honey brings the best prices from September on while the market is not yet overstocked. The reverse was always the case about Christmas time. Our experience of the past will repeat itself this year, as usual. Beeswax is in good demand at 20@25 for good to choice yellow.

CHAS. F. MUTH & SON.
Sept. 8. Cincinnati, O.

ALBANY.—*Honey.*—We have received up to date 400 cases of comb, and 18 packages of extracted, honey. This is about the same as receipts last season, although the quality does not average as good.

We have sold 150 cases already, at prices ranging from 11@15 cts., according to style and quality. Not much demand for extracted yet. We quote: White comb, 13@15; No. 2, 11@12; buckwheat, 10@11. Extracted, 6@8 CHAS. McCULLOCH & CO.,
Sept. 8. 393, 395, & 397 Broadway, Albany, N. Y.

NEW YORK.—*Honey.*—New comb honey is now arriving freely, and the demand is fairly good. We quote: Fancy white, 1-lbs., 15; 2-lbs., 13; fair white, 1-lbs., 13; 2-lbs., 11; buckwheat, 1-lbs., 11; 2-lbs., 10. The market on extracted remains quiet, with plenty of stock on hand. Basswood and white clover, 6@6½; southern, 50@60 per gallon. Beeswax, easy at 26@27. HILDRETH BROS. & SEGELKEN,
Sept. 10. 28 & 30 Broadway, New York.

BOSTON.—*Honey.*—We quote you our market on comb honey, in 1-lb. sections, at 14@15 cts., with a light demand as yet. Extracted, 5@6. Cooler weather will naturally open up a demand.

E. E. BLAKE & CO.,
Sept. 8. Boston, Mass.

DETROIT.—*Honey.*—Best white comb, 15; dark lots, 12@13. Supply not large. Extracted, 5½@7. Beeswax, 24@25. M. H. HUNT.
Sept. 6. Bell Branch, Mich.

KANSAS CITY.—*Honey.*—The receipts of comb are more liberal; demand fair. No. 1 white 1-lb. comb, 15; No. 2, 13@14. No. 1 amber, 13@14; No. 2, 10@11. Extracted, 5@6½.

CLEMONS, MASON & CO.,
Sept. 8. Kansas City, Mo.

KANSAS CITY.—*Honey.*—The supply of comb and extracted is very light, with only a fair demand. We quote you pound fancy white, 15@16; amber, 11@12; dark, 10. Extracted, white, 6½@7; amber, 6@6½; dark, 4½@5½. Beeswax, 22.

HAMBLIN & BEARSS,
Sept. 8. Kansas City, Mo.

CLEVELAND.—*Honey.*—Honey-buyers are feeling the market at present, and, while they are not making purchases, their inquiries indicate firmer prices from this on. We are placing No. 1 white at 13@14; No. 2 white, 11@12. Beeswax, 25.

WILLIAMS BROS.,
Sept. 7. 80 & 82 Broadway, Cleveland, O.

ST. LOUIS.—*Honey.*—There are no changes to date. Honey is in light demand at former quotations, receipts of new arriving slowly. Prime beeswax, 26.

D. G. TUTT GROCER CO.,
Sept. 8. St. Louis, Mo.

Linn honey by the 50 lb. pail, or in barrels, 1894 crop. Prices given on application. Address
J. B. MURRAY, Ada, O.

A carload of fine extracted alfalfa honey, well ripened, in 60-lb. square cans, at 7c, f. o. b. cars here. Samples by mail. AIKIN BROS., Loveland, Col.

FOR SALE.—Alfalfa honey, comb and extracted. Prices to suit the hard times. CHARLES ADAMS,
Greeley, Col.

WANTED.—To buy quantity lots of white comb and dark extracted honey.
B. WALKER, Evart, Mich.

FOR SALE.—Choice white-clover comb honey, 14c; other grades less. A. P. LAWRENCE,
16-23ei Hickory Corners, Barry Co., Mich.

Comb and extracted honey wanted, in large or small lots. Consignments solicited. Reference, A. I. Root, or Union National Bank, Denver.
eitf R. K. & J. C. FRISBEE, Denver, Col.

FOR SALE.—7000 lbs. of fine, ripe, extracted basswood honey, highest offer takes it. Also Italian Bees and Fox-hound pups.
eift ELIAS FOX, Hillsboro, Wis.

WANTED.—To buy *for cash*, 10,000 lbs. of extracted honey (cheap quality). Wanted to buy for cash 20,000 lbs. fancy comb honey.
S. T. FISH & CO., 189 South Water St., Chicago, Ill.

CHAS. ISRAEL & BROS., 110 Hudson St., N. Y.

WHOLESALE DEALERS & COMMISSION MERCHANTS. Established 1875.

HONEY —AND— BEESWAX.

LIBERAL ADVANCES MADE ON CONSIGNMENTS.

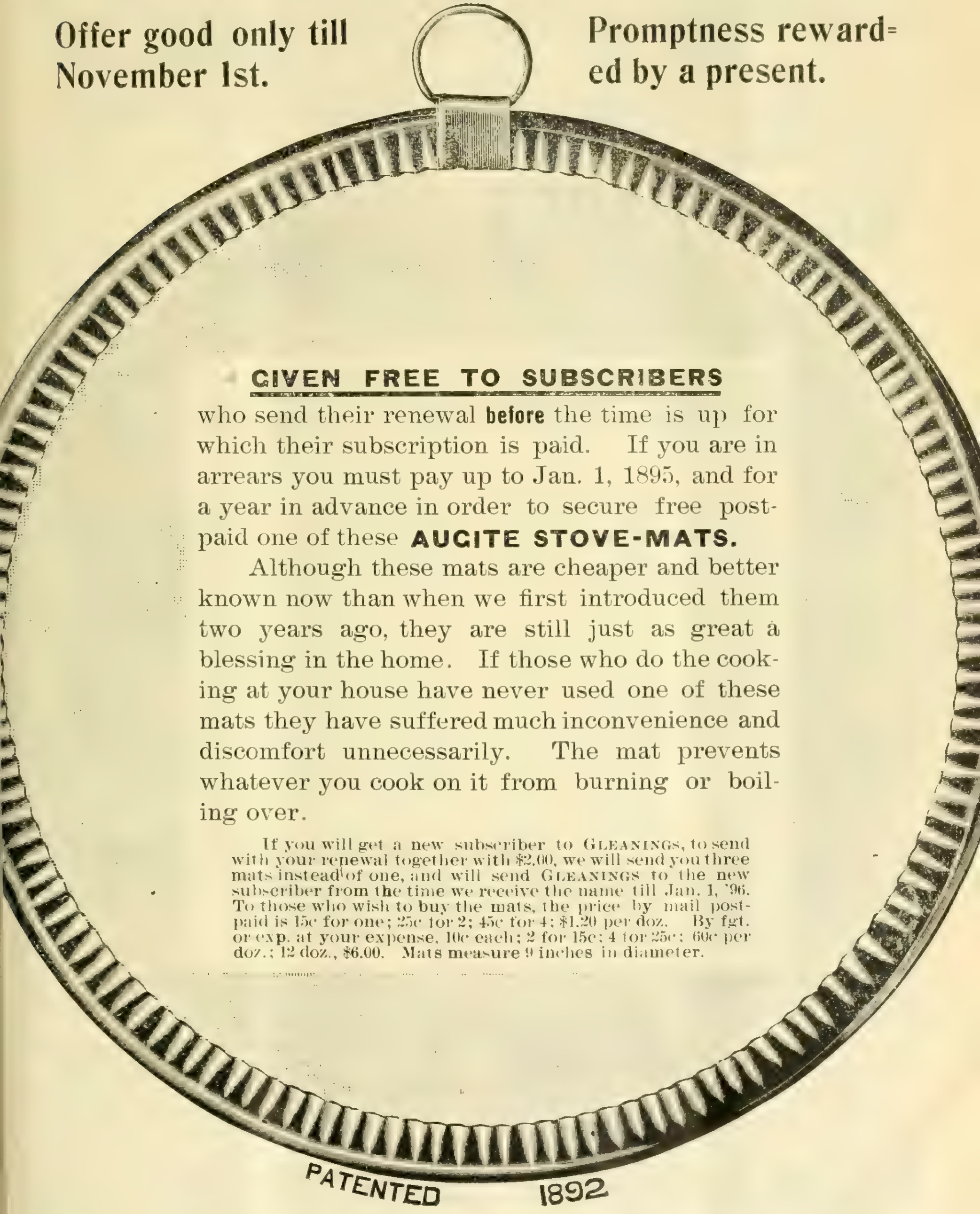
BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds
W. Atlee Burpee & Co., Philadelphia, Pa.

Premium for October.

Offer good only till November 1st.

Promptness rewarded by a present.



GIVEN FREE TO SUBSCRIBERS

who send their renewal **before** the time is up for which their subscription is paid. If you are in arrears you must pay up to Jan. 1, 1895, and for a year in advance in order to secure free postpaid one of these **AUGITE STOVE-MATS.**

Although these mats are cheaper and better known now than when we first introduced them two years ago, they are still just as great a blessing in the home. If those who do the cooking at your house have never used one of these mats they have suffered much inconvenience and discomfort unnecessarily. The mat prevents whatever you cook on it from burning or boiling over.

If you will get a new subscriber to GLEANINGS, to send with your renewal together with $2.00, we will send you three mats instead of one, and will send GLEANINGS to the new subscriber from the time we receive the name till Jan. 1, '96. To those who wish to buy the mats, the price by mail postpaid is 15c for one; 25c for 2; 45c for 4; $1.20 per doz. By fgt. or exp. at your expense, 10c each; 2 for 15c; 4 for 25c; 60c per doz.; 12 doz., $6.00. Mats measure 9 inches in diameter.

Seize upon the opportunity while it lasts. We send the mat free postpaid when above conditions are complied with.

A. I. ROOT, = = Medina, O.

50 Queens At Fifty Cents Each.

I have the above number of fine young laying Italian queens that I will sell at the above price. They are strictly first-class, and the low price is made that they may move off at once and allow me to unite the nuclei and get the bees in shape for winter. I have plenty of tested queens of this season's rearing that I can supply at $1 00 each or six for $5.00. If you have old queens in your apiary, you can not spend money to better advantage than by putting some of these young queens in their places.

W. Z. HUTCHINSON, Flint, Mich.

$1,000 in PRIZES

Divided into 4 1st prizes of $150 each, and 4 2d prizes of $100 each will be given for best designs for

WALL PAPER

Send 2c. for complete detail information. Designs must be entered before Nov. 15, 1894. Designs not awarded prizes will be returned, or bought at private sale.

No matter where you live, don't pay retail prices for wall paper. We make a specialty of the mail order business and sell **direct to consumers at factory prices.**

SPECIAL FALL PRICES: **Good Paper 3c. and up. Gold Paper 4c. and up.**

At these prices you can paper a small room for 50c.

Send 10c for postage on samples of our new fall paper and our book **"How to Paper and Economy in Home Decoration,"** will be sent at once, showing how to get $50 effect for $5 investment. *Send to nearest address.*

ALFRED PEATS, DEPT. 90.

30-32 W. 13th St., NEW YORK. 136-138 W. Madison St., CHICAGO.

☞In responding to this advertisement mention GLEANINGS

SPECIAL OFFER FOR THE NEXT 60 DAYS.

Untested 5-banded queens 50 cts. each; six, $3.00; warranted, each, 60 cts.; six, $3 50; tested, 75 cts.

Reference, A. I. Root.

Leininger Bros., Ft. Jennings, O.

Italian Queens Cheap.

My queens are as good as the best. Untested, 65c each; 3 for $1 75; 6 for $3 25. Tested, 1 25 Select tested, yellow to the tips, breeders, $1.50. Virgins, 25c. Safe arrival guaranteed

G. E. DAWSON, CARLISLE, ARK.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's strain of Italians,** the result of 15 years' careful breeding.

Dr. H. B. Lung, Lexington, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious, energetic bees. I must express my admiration for your success as a bee-propagator"

Warranted queens, 80c each; 3 for $2.00. Select Warranted queens, $1.00 each. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 666 queens. Circular free. eitf

J. P. MOORE, Morgan, Pendleton Co., Ky.

QUEENS.

Tested, $1.00; 6 for $5. Warranted, 75c; 3 for $2. Breeders, the very best, $2 00. Straight 5-band, $3. Also apples, Ben Davis, Mammoth Black Twig, Arkansas Black, all leading varieties; whole root only; trees 10c each. On orders of 100 I will pay freight.

W. H. LAWS, Lavaca, Seb. Co., Ark.

Golden Queens

Untested 65 cts. each; 6 for $3 50; 12 for $6 50. Tested, $1 00 each. Fine prolific breeding queens, $2.50 to $4 00. To parties who have not tried my strain of Italians I will send one golden Italian queen for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

Money-order office, Lavaca, Ark.

World's Fair Medal

Awarded my ***Foundation.*** Send for ***free samples.*** Dealers, write for wholesale prices. Root's new ***Polished Sections*** and other goods at his prices. ***Free*** Illustrated Price List of every thing needed in the apiary.

Bell Branch, Mich. **M. H. Hunt.**

Sample Copy Free!

Please Cut Out

This whole Advt. sign, and Mail.

☞Please send me the American Bee Journal each week for Three Months. At the end of that time I will remit $1.00 for 1 year's subscription, or 25c. in case I decide to discontinue.

To the Publishers of American Bee Journal,

56 Fifth Avenue, CHICAGO, ILL.

*Name*______________________________

*P. O.*______________________________

*State*______________________________

32 Pages, Weekly!

MONEY RETURNED

to all buying **PORTER BEE ESCAPES** not satisfied after testing them. Prominent bee-keepers everywhere use and highly recommend them as **the best.** No others received a World's Fair award. Testimonials, etc., free. Prices: Each, postpaid with directions, 20 cts.; per doz., $2 25. Order from your dealer, or the mnfrs., **R. & E. C. PORTER, LEWISTOWN, ILL.**

13 Carloads of Supplies.

This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially

FOR THE WEST.

Joseph Nysewander, Des Moines, Ia.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR MEDINA OHIO

Vol. XXII. SEPT. 15, 1894. No. 18.

STRAY STRAWS
FROM DR. C. C. MILLER.

ONLY THREE WEEKS till the convention at St. Jo—excuse me, brother Abbott—seph.

IN GERMANY they have a convention of bee-keepers as is a convention—from Sept. 1 to Sept. 16!

THE STING-TROWEL THEORY, that Rev. W. F. Clarke first gave out as a fact, he now holds only as a supposition.

FRUIT GATHERING time has come, and we find these boxes just capital that come from Medina with sections.

MY BEES seem to empty the feeders faster in daytime than at night, although the nights are warm, and bees fly well all day.

TO PREVENT second swarms, says *Rucher Belge*, run a laying queen in at the entrance on the day of first swarming, smoking before and after.

I SECOND that motion, on p. 681, to reduce the N. A. B. K. A. affiliation fee; at least, to let affiliating societies have full value for their money.

QUEEN CELLS, when you cut them out to use, are often daubed with honey. Lay them on top of the frames or at the hive-entrance, and the bees will clean them off.

THE *British B. J.* says no greater mistake could be made than to extract from the brood-nest in the fall, to replace with sugar syrup. Your head's level, Mr. Britisher.

A NEW CLOVER, *Trifolium incarnatum rusticum*, is highly spoken of in Germany. I think it is an improved Italian or scarlet clover, and it is said to grow three feet high.

A POINTER that W. R Grannis didn't give on p. 702 is, that raspberries don't suffer as much as other things from being in partial shade. I've had good crops between apple-trees.

WE ALL LIKE to tell a big story about our honey-yields, but my report on p. 693 is exaggerated a little too much. The omission of a decimal point makes my average 16 oz. It should have been just one-tenth that. My entire crop came from one colony.

"DOES AN OLD QUEEN pipe?" Reepen answers in *Centralblatt* in the affirmative. No doubt about it. I've both heard and seen an old clipped queen piping.

SEVERAL SAY that the way to manage sticky fingers is to carry a wet towel along, some having a pocket for that purpose. If it weren't for the trouble, a wash-dish would be a good addition.

GRAVENHORST, the able editor of *Deutsche Illustrierte Bienenzeitung*, has prepared a paper for the N. A. B. K. A. convention, giving interesting details as to apistical matters in Germany.

"IF A COLONY has a virgin queen, also unsealed queen-cells, is there any danger of swarming?" is a query in *A. B. J.*, and the veterans are all mixed up in their replies. I'd like to know the true answer.

I'D HAVE GIVEN two spools and a potato pop-gun to see the real face when Ernest opened on the counterfeit, p. 691. [Yes, you knew all about it when I was at Marengo, and kept mum. How could you?—ED.]

PROPOLIS is recommended in *Revue* as a cure for corns. Use as a plaster. Why wouldn't propolis make a good adhesive plaster for general use? [If there should be a general demand for it, we can spare a little.—ED.]

OBSERVER, in *Progressive*, says when frames of brood are given to colonies having laying workers, nine times out of ten "if adhering bees are given with the brood, a cell or a queen can be given at the same time if other conditions are favorable."

THAT WIDE-AWAKE dreamer, Somnambulist, in *Progressive*, bears testimony to the efficacy of bee-stings in rheumatism, from personal experience. But it looks almost like a case of real somnambulism when he says he didn't feel the stings—only saw the bees prodding him.

WM. MCEVOY, in *A. B J.*, indorses Prof. Cook's view, that bee-paralysis is caused by starvation, and says there will never be trouble if bees have plenty of *unsealed* stores while brood-rearing is going on. [I have seen bee-paralysis in several instances where there were plenty of unsealed stores.—ED.]

THE *American Bee-keeper* says there are several candidates for president of the N. A. B. K. A., and announces its own. First time I ever heard of a candidate in advance of the meeting, and I doubt the wisdom of prejudicing any one's chances in that way. [So do I.—ED.]

ASKED WHETHER it was better to reduce the room in a 10-frame hive by putting in two dummies or two combs filled solid with honey, 11 replied in *A. B. J.* in favor of the combs of honey; 7 preferred dummies, and 3 were non-committal. Large-hive men will claim that as an argument on their side.

NO CONVENTION did I ever enjoy more than the last one I attended. It was at our house, Aug. 23. The discussions were earnest, but the order wasn't always the best, two speakers often occupying the floor at the same time. Ernest wanted to talk more than his share. [Don't you believe the doctor. 'Twas the other way.—ED.]

I'M GLAD TO KNOW that the younger Root is not given to stimulants. He takes coffee as weak as I do; and when I said, "Will you have some pepper?" he left the table. [Yes, and nearly choked to death over the *very idea* of it. Don't believe it? It's a fact, and Dr. M. could a tale unfold, but I guess he'd better not. —ED.]

ONE OBJECTION to those solid yellow bees is the difficulty of finding the queen—workers and queen looking so much alike. [And another objection to them is, that the majority of them seem to be bad stingers. The finger holding this pen is smarting from a sting just received from one of the yellow ones; but, as I have said before, not all these yellow bees are cross. —ED.]

ON THE NIGHT of Aug. 22 I was awakened by a tramp and a bicycle who wanted a bowl of milk. I mean the man, not the bicycle, wanted the milk. After a heavy coating of dust was removed, he turned out to be a Medina editor. [Tramp? That about describes the way I felt; but all the same I was fed well and bedded well. I'll tell the rest of the craft to call that way.—ED.]

BRACE AND BURR COMBS have been mercilessly fought by nearly all. Doolittle comes to their defense in *A. B. J.*, saying the bees need them for ladders, and that their great value consists in the fact that with them bees commence so much sooner in supers. [My own observation in scores of apiaries, and the reports that I have read, all go to show that, when the bee-spaces are correct, burr-combs have no effect either way. Doolittle is almost always right, but in this case I think he would change his mind if he were to travel among bee-keepers as I have done. See Editorials—ED.]

GENERAL CORRESPONDENCE

THOSE SHIPLOADS OF CUBAN HONEY.

CUBA AND THE HONEY TARIFF; THE DARK SIDE OF CUBAN BEE-KEEPING.

By Fred O. Somerford.

I notice in GLEANINGS of July 15th an article from Mr. H. F Moore, on page 574, in which he seems to be particularly aggressive against Cuba and her honey-producers. While I admit that friend Moore's article was an able one (for the protectionist), yet with the utmost cordiality, and with malice toward none, I can not refrain from questioning the ground of his insinuations about Cuba. In the first place, he intimates that we bee-keepers this side of the Gulf can produce honey for almost nothing—a statement that is more or less generally believed by our Northern brothers; and to those in the business here it sounds "fishy" in the extreme. As one of Cuba's bee-keepers who has produced something like 200,000 lbs. of honey in the last few years, I am in a position to know the realities that are in the business; for it must be remembered that, in starting apiaries here, every thing has to be imported; and as freights and duties are so high, the first cost of an apiary here is generally very great, to say the least; and when the additional high cost of living, caused by Spanish importation duties, is taken into consideration, also the dearer cost of land, rent, etc., all having a tendency to make the conditions far different from those generally supposed to exist in the "Queen of the Antilles," and after some years in the business here, I have gradually, and, I dare say, truthfully, come to the conclusion that, unless we get as much as 35 cts. per gallon for extracted honey there is very little margin left for the producer to glory over. It must also be remembered that we are occupied twelve months in the apiary here, instead of six, as is generally the case in America.

I was somewhat surprised at friend Moore's assertion about "cheap and even slave labor." Cheap labor in Cuba is, and has for some time been, remembered as a thing of the past; for the sugar-cane industry here, with its numerous costly factories, has assimilated all the cheap and idle labor in the production of 1,000,000 tons of sugar annually, and wages have advanced until the laborer no longer receives as his reward a European pittance, but is paid nearly as well as his more fortunate comrades in America; and if Spain would only tear down the Chinese wall she has built around her subjects here through her custom-house—emancipate them, as it were—the island would no longer be considered an inferior place for developing the highest traits of manhood.

As for friend Moore's slaves, I am happy to say they exist only as a "protectionist's fabrication," for political wire-pullers to mislead the public, as slavery has been abolished a great many years. There is very little Cuban honey sent to America to be sold, as the commission men here depend mostly on European markets. Even if the duty were lowered to 10 cts. per gallon, it is hardly possible that much honey from here would be sold in American markets; but it might be favorable to Cuba by making American markets open to Cuban honey, thus stimulating competition with the buyers of Europe; but it is impossible that the importations increase a large amount in America, as there are only about ten movable-frame apiaries on the island, and they are owned by Americans, with but few exceptions. There are, however, numerous box-hive apiaries that receive but little attention, and give corresponding results. And as for those "shiploads" of honey ready to be dumped on American markets as soon as we have favorable tariff legislation, that, too, exists only as a supposition, for in reality there is not honey enough on the island now to furnish ballast for one ocean steamer.

That America has competitors in nearly every manufactured article exported is not to be doubted; neither is it to be questioned that, in all Latin-American countries, her fabrics are most sought after; but that Cuba, as it exists to-day, will become her competitor in the production of honey, and entail a loss of half a million dollars a year to American bee-keepers, will hardly be indorsed by an intelligent people —much less entertained for a moment by the writer.

San Miguel, Cuba, Aug. 22.

[Notwithstanding our purpose, as already stated, to drop the tariff discussion, it is no more than fair that a resident of Cuba have a chance to state the facts so far as they really exist on that island: for by reason of the distance he has not had an opportunity hitherto to state his side. Quite a number of bee-keepers, to our certain knowledge, were expecting to move to Cuba; and it is certainly very important that the *dark* as well as the bright side should be presented. When bee-keepers ask our advice regarding the advisability of emigrating to some more favorable clime, we generally say, "Stay where you are." All locations have their bright as well as dark sides; and, too often, the "dark side" has been discovered after a long expensive trip, and an entire failure of honey.—Ed.]

RAMBLE 116.

SANTA PAULA AND VENTURA.

By Rambler.

The next honest bee-keeper we clasped hands with was Mr. R. Touchton, of Santa Paula. Mr. T. regulates the affairs of his city by holding the office and performing the functions of justice of the peace. In other words, he is a sort of queen-bee of the city. The city was evidently behaving itself in a proper manner, for we found the justice's office locked, and he was about other business. We were welcomed at the house by Mrs. Touchton, and, soon after, the worthy esquire put in an appearance, and we discussed bees and a good dinner for an hour or so. Mr. T. is not largely engaged in honey-production at present, but has enough work in that line to keep him busy some weeks. His wife is as much interested in the pets as himself, and is a willing helper during the honey season. We find that nearly all bee-keepers' wives are thus interested in their husbands' management of the bees, and think it next to a picnic to get out to the bee-ranch for a season. It seems to relieve the monotony of the every-day home life.

Mr. Corey's residence is but a short distance away, but he was out on his bee-ranch in the Newhall region. We regretted to miss seeing this veteran in our industry. His face and voice are always so prominent in our conventions, and the Messrs. Corey, Touchton, and Richardson, all of Santa Paula, are such helpers upon such occasions, that it is a pleasure to meet them; and it is to be regretted that there are not more like them to take an interest in such matters. Mr. Richardson was also out of town. He works the trade of architect in with bee-keeping; and during this off season, when his tons of honey will not be so numerous as they were last year (64 tons), he is plying his trade in the Ojai (*Ohi*) Valley.

Mr. Touchton had the same story to rehearse as the rest—no honey, and a good prospect for feeding. Santa Paula had also grown since our last visit, and still continued to be the center of the coal-oil industry, the pipes leading out from here to the many wells in various localities miles away. Our stop with Mr. Touchton was for only a few hours, and we were on the road again.

Soon after leaving Santa Paula we enter the great bean-belt of Ventura Co. The largest bean-ranch, 16,000 acres, and all to beans, is owned by Dixie Thompson. The withholding of winter rains was having its effect upon the bean, and the output will be several score carloads less than usual.

We entered Ventura near evening, and, having learned from Mr. McIntyre that Messrs. Wilkin, Mercer, and Mendelson, were out to their apiaries, we concluded that our stop would be short in Ventura, and camped that night near the river, with the intention of pushing along again the next morning. When that time arrived we resolved to have some repairs made upon our wagon; and, unloading our movables into our tent, Mr. Wilder went off calmly to superintend the repairs, while I remained in camp to answer several letters which I had just received in Ventura. A budget of letters and papers always gives new interest and new life. I was in the midst of my writing —in fact, right in the middle of a letter—when Mr. Wilder, who went away so calmly, came up at a tearing rate, with only Keno, on a light wagon. We had resolved to make a short sea-voyage out to the islands if we had the opportunity. Wilder had just learned that a fishing-smack would start in just half an hour. It took me about a minute to focus my mind from letters to sea-voyages, and then we tumbled things into the wagon and were off; but disappointment awaited us. The smack took the first favorable breeze, and left before the half-hour was up. While sadly contemplating the vicissitudes of this life from the door of the blacksmith's shop, where our camping-outfit was scattered pellmell around us, whom should I see but Mr. Mendelson driving by on his cart! The recognition was mutual. He reined his steed up short, sympathized with us about the sail to the islands, and wound up by saying that, if we would stay over, he would go with us when we could get the boat. We went out to Mendelson's bee-ranch, and camped in his door-yard.

"THE SHIP'S GONE, SURE!"

We found that Mr. Mercer was also at home, and he also seemed willing to go to the islands. Then Mr. Crampton, his neighbor, and also a bee-keeper, thought he would also like to go; so upon the whole we stopped regretting our first disappointment, and were glad that the change happened; for now we should have several happy bee-keepers with us. The fishermen would not be back for at least two days, and meanwhile Mr. Mercer and wife and sons, Mr. Mendelson and wife and daughter, Mr. Crampton, wife, and daughter, and the Rambler, spent a very pleasant day in the Ojai Valley. Mr. Crampton owns an apiary up one of the canyons, which ordinarily yields good profits. The valley is devoted largely to fruit, and of excellent quality. We were pleased to meet Mr. Richardson, of Santa Paula, who was busy erecting a large and elegant mansion for some eastern capitalist who evidently thought the Ojai Valley, with its surrounding mountains, a very paradise in which to escape from the rigors of the eastern winters.

We were on hand early the next morning for the boat; but it did not arrive, and we returned to Mr. Mendelson's. Mr. M. is making improvements on his ranch, and, having in contemplation the erection of a new building, Mr. Wilder and I offered to help. The Rambler, with square and scratch-awl, laid out the architectural plan. The building was three feet six inches long, three feet three inches wide, and six and a half feet front elevation. We all hammered, sawed, and talked, at a great rate. There was a large knot-hole in one of the boards. Said I, "Mr. M., shall I nail a piece of tin over this?"

"Oh, no!" said he; "leave that for ventilation."

The board at the gable end lacked an inch or two. "How is this, Mr. M.? Shall I put a piece biasing over that?"

"Oh, no! let it go for ventilation."

Our boards for the door lacked about six inches at the bottom.

"Shall I put a thin board over that?" said I.

"Oh, no! let it go for ventilation."

These little short cuts for ventilation shortened our work materially; and before sunset the building was completed, and is an ornament to the grounds.

Mr. M. is a lover of the rose, of which he has 70 varieties in his apiary. I have no doubt the new building will be hidden under one of those climbing varieties, excepting, perhaps, those places left for ventilation.

It will be remembered that a description of Mr. M.'s apiary, and a half-tone of himself, appeared in Gleanings, page 462, 1892. Mr. M. lived for several years in California, a more or less happy bachelor; but last winter a different spirit entered his dreams, and his friends were suddenly surprised to hear that he was married. He seems to live just as happily as before, and his house shows that deft hands are there to make things more homelike. Mrs. M. came from Denver, and this is the first of her life on a California bee-ranch; and, considering the lonesome and secluded place occupied, she takes hold of the situation bravely. When we crossed Mr. M.'s path in Ventura he was indulging in dreams of bean honey. Every year he moves an apiary into those great bean-fields. An eighty-acre grove of those tall gum-trees gives shelter, and makes a beautiful place in which to plant an apiary. Mr. M. calls this his movable apiary. Every thing is fitted for moving in the shortest space of time in preparation. The extracting-house is so constucted that it can be taken apart in sections, and folded into a small space. The upper half is surrounded with wire-cloth screen; through this the swarming operation can be watched, and it also serves the gentleman's hobby of thorough ventilation. The twelve-step step-ladder and Manum swarm-catcher, Mr. M. thinks, are invaluable aids where the bees persist in getting to the top of those tall trees.

MENDELSON'S MOVABLE BEAN-FIELD APIARY.

The bean-field apiary is usually worked with 200 colonies; and, being located three miles from water, the fluid is hauled to them in one of those big sixteen-barrel tanks so common in this region.

Mr. M. has had much experience with out-apiaries, having at one time four upon his hands. He thinks he can work two to better advantage than he can a greater number. The greater number requires more helpers and more expense.

Fruit-drying interferes with bee-keeping in this valley. Thousands of apricot-trees dot the landscape. The fruit is dried largely, and bees will work much upon the drying fruit. Mr. M., in order to live in peace with his fruit-neighbors, has several times paid quite liberal damages. No method, it seems, can be devised to prevent the bees working on fruit. To cover with screens is too expensive; to shut the bees in their hives is also expensive, and troublesome and dangerous to the bees. It might be asked why the apricot-grower does not dry by artificial heat. While it is done for some fruits, it is evidently cheaper to dry by the natural heat of the sun, for it is sure to shine every day for months.

Mr. Mendelson is an enthusiast in the bee-business, and, for the sake of continuing in it, he has thrown many mercantile chances over his shoulder, and does not seem to regret it. There is one point in Mr. M.'s management that shows his business qualities; and that is, he usually gets a good price for his honey, or a little better than the rest of us. With that remark I will leave Mr. M. until our next.

THE PERFECTION OF FRUIT GROWN ON AN ISLAND WHERE NO BEES ARE KEPT.

BEES DO NOT INJURE GRAPES; SOME INTERESTING OBSERVATIONS FROM AN OLD SUBSCRIBER.

By Thaddeus Smith.

A week ago I spent several days at Sandusky, Put-in-Bay, and Middle Bass Island, my objective point being Mr. George M. High's, on the latter island, to see what success was made this year in growing fruit where bees do not visit. On my return home I found GLEANINGS, with your account of your visit to Catawba Island, etc. It would have been a great pleasure to me to meet you and taken you to see Mr. High's fruit. You would have found his peach-orchard cultivated with the same care that you found on Catawba Island, and loaded with like beautiful fruit; and, in addition to peaches, you would have found splendid apples, pears, and plums, to say nothing of a beautiful well-loaded vineyard with some hundred or more varieties of grapes. And these were grown without the aid of bees or other insects to fertilize the bloom.

When Mr. High's attention was called to the discussion of this matter of fertilization he became quite interested in the subject, and watched the bloom upon his fruit-trees very closely to see if he could discover any insects upon them. Bees, he knew, never visited his island. He made it a point to examine his peach-trees three times a day, but could not find any insects of any kind on the bloom. He thinks that, if you should visit his trees when in bloom, as you suggest you would be willing to do, you would have to bring more powerful magnifying-glasses than your spectacles, to find any insects.

Did you think to inquire whether bees were kept on Catawba Island? But even if they were, we know that there are no bees on some of the other islands where fruit is grown in the same perfection as on Catawba Island. Mr. High's evidence shows that other insects had but little to do with the matter. But Prof. Cook, long ago, in his zeal to show that bees *are* necessary, gave this "other insect" theory a black eye by showing that there are comparatively very few or no insects flying as early in the season as early fruit-bloom, in a northern country like this.

It is very hard to convince some people against their will or their interest. I have long since decided, by close observation and careful experiment, that bees do not injure perfectly sound fruit, particularly grapes, which are my specialty. I made a visit to my old home in Kentucky this spring, where I met an old friend —a bank cashier, but an amateur grape-grower and gardener. His grapes, of several varieties, were beautifully cared for, and bore well; but he said that he could get but little good of them, as the bees ate them all up. Of course, I took issue with him, and we had quite a discussion over the matter. "Why," said he, "don't I know? When I covered the grapes with netting I saved them from the bees!"

"My friend," said I, "don't you know that, when you covered your grapes, you kept the birds and wasps from them also?"

I had endeavored to show him that the grapes were punctured by birds or wasps before the bees visited them; but no arguments or facts could convince him that the bees were not the real depredators, and he even went so far as to believe that he was justified in destroying them.

Like this friend, some are saying, "Don't I know that bees are necessary to fertilize fruit? because, the season that we had a cold wet spell during fruit-bloom the bees could not fly, and we had no fruit that year!"—forgetting the fact that every intelligent fruit-grower ought to know, that cold wet weather prevents pollen from being disseminated in the natural way. We jump at conclusions without giving due weight to all the facts and evidence in the case. The evidence in favor of the bees is entirely of a negative character, while there are many positive facts to show that fruit has been produced, plentifully and good, where there were no bees. But it is was not my intention to discuss this matter. I started out only to call attention to the fruit on islands where there are no bees.

You kindly mentioned in Gleanings, that I was a reader of it when printed by wind power. Yes, my interest in you and your writings goes still further back—to the days when "Novice" wrote for the old *American Bee Journal*. You remember the exciting discussions we used to have on the "hive question." I remember the interest I felt in your account of the absconding swarm with the queen called the "Giantess," etc. I have read your writings from them up to the present time, so closely that I feel not only that I was acquainted with you, but that you were an old friend, and that I knew all the family.

Pelee Island, Ont., Can., Aug. 25.

WORK IN THE APIARY.

A PERFECT SYSTEM OF KEEPING TRACK OF IT.

By Wm. Muth-Rasmussen.

When a bee-keeper has many colonies to attend to, it will not do to go by guesswork or to trust to memory; neither does it pay to spend time examining colonies that do not at present need any attention. The bee-keeper should at all times know the condition of each colony, its special requirements, and the exact time when it ought to be attended to.

I formerly used slates on the hives; but as my colonies increased in number I found the slates unsatisfactory for this purpose. I now use them only on the supers, simply writing the date of the last emptying or examination on the slate, while its position on the hive-cover indicates what I want to remember. To prevent it from being moved by the wind or other accident, I drive a one-inch wire nail through the hole in the slate. The nail is easily moved, when required, with a little magnetic tack-hammer. I write the date on both sides of the slate, for fear that a shower may obliterate the writing on the upper side. It is quickly done; as, for instance, "$\frac{7}{1}$" means July 1.

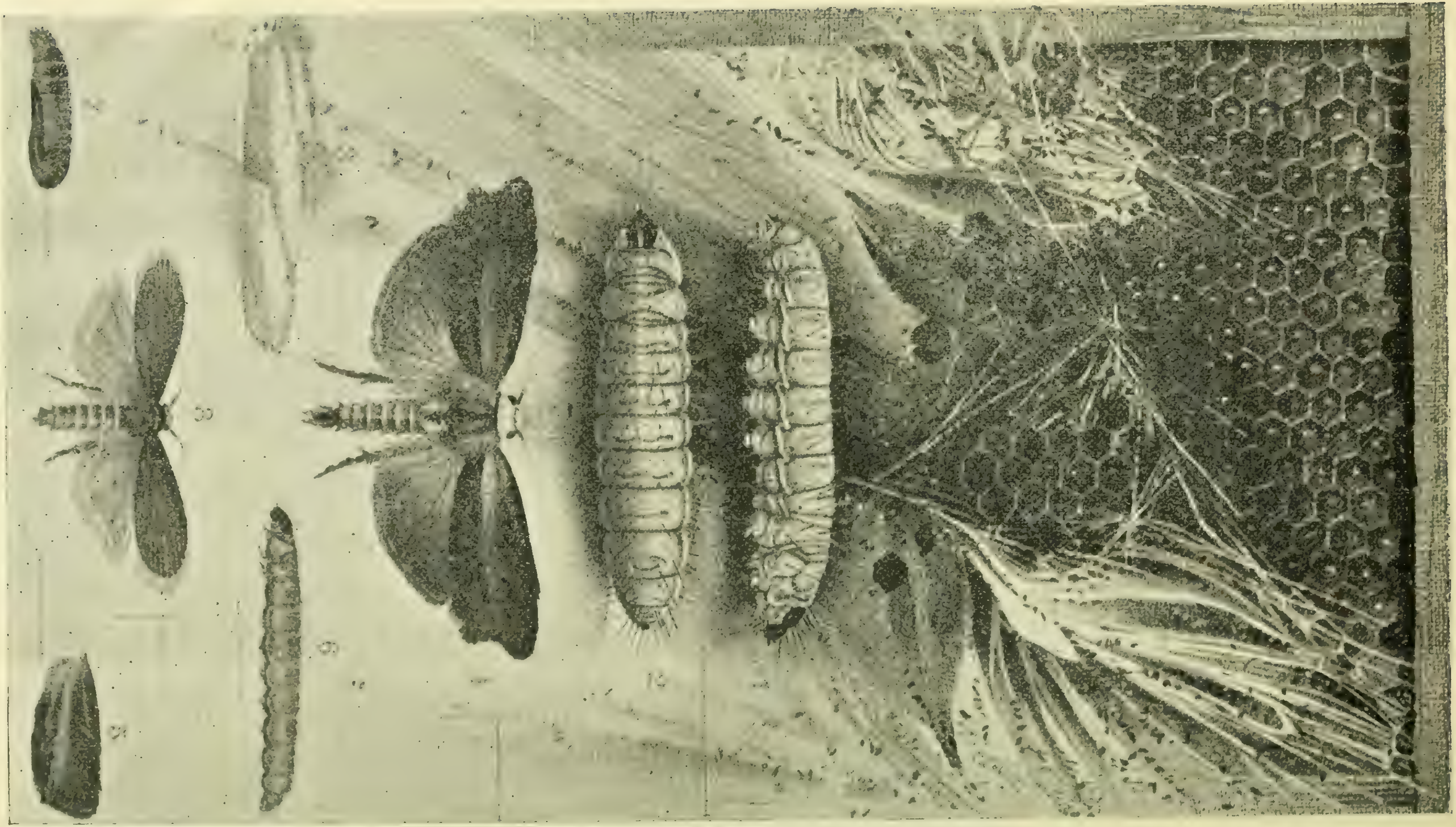
Having had, during the last two years, to requeen a large number of colonies, I have devised and perfected a system of record which gives me entire satisfaction. The nearest I have seen to it is in occasional hints in articles from Dr. Miller and Miss Wilson, but never any thing very definite, so far as I remember. In the hope that my system may be of use to others, I give it herewith.

I use a small note-book, which I carry with me, when at work, and a memorandum-calendar. In order to find quickly the page I am using, I slip a spring-clothespin over the opposite leaf, the rest of the leaves, and the cover on that side of the book. The pages in my note-book are ruled from top to bottom into seven columns—one wide column in the middle and three narrow ones on each side. In the first column, at the left, I designate by a (any) letter those colonies that require the same attention or are in the same condition; for instance, all in which queen-cells should be found hatched may be indicated by the letter "a;" all in which young queens should be found laying, by "b," etc. The second column contains the numbers of such colonies as require attention on a certain date. The third column gives the date of last examination. The fourth (wide) column is for items. If I know beforehand what is to be done with a certain colony I enter it here; and when it is done I check it off in the fifth column. If the colony should be found in a certain condition—for instance, having a young queen beginning to lay, it is entered (in abbreviation) in the fourth column, with an interrogation-point; and if found as expected, the mark is crossed out. If, for any reason, it is necessary to review previous record, I write "vd." (see) in the fourth column. For economy of space, and quickness of writing, I use abbreviations as much as possible in these items. One or two letters are sufficient to indicate what I wish to record. Sometimes signs are used. For instance, "q" for queen, "hy" for honey, "ncl" for nucleus, "©" for cell in queen-cell protector, "†" for dead, "x" for clipped. In the sixth column is noted the date when each colony will again require attention. When I am through with my day's work I enter in the memorandum-calendar, under the respective dates, the numbers of colonies to be attended to on each date, and add to each number the date of last examination, found at the head of the page in the note-book (not the previous date in the third column). As soon as entered in the calendar it is checked off in the seventh column. Thus I avoid missing any. Now for the practical application:

On the morning of any day when the calendar shows that there is work to be done in the apiary—or perhaps on the preceding evening—I write the date at the head of a page in my note-book, and then copy the numbers and dates from that date in the calendar into the note-book, each number being given one or two lines for its special items. Under date of July 3 I find this: 104, 28—16, 1—72, 2—(and perhaps many more). This means that colony No. 104 was last examined on June 28; No. 16 on July 1, and No. 72 July 2, etc. Nos. 104, 16, and 72, are now written in the second column of the note-book on separate lines underneath each other, while the dates, 28, 1, and 2, are added in the third column opposite their respective hive-numbers. As fast as entered in the note-book they are crossed out in the calendar. I now look back to the previous date for each number; and if I find, for instance, that I gave No. 104 a queen-cell in cell-protector, I write in the fourth column, opposite 104, © h?, which means that I expect to find the cell hatched. Take No. 2 for an example, and let us follow it from date to date:

			July 2.			
	72		Blacks; unqueen and start cs.	✓	3	✓
			July 3.			
	72	2	Took away q. and all brood.	✓	4	✓
			July 4.			
	72	3	Gave It. bd. from 195.	✓	12	✓
			July 12.			
	72	4	Cut out qcs, left one.	✓	20	✓
			July 20.			
a	72	12	c hatched; gave brood.	✓	28	✓
			July 28.			
b	72	20	Laying, clipped, and recorded.	✓	—	—

On July 3, I see, by looking back to the previous date, I found it to be a good strong colony of black bees, and determined to set them to raising Italian queens. I therefore take away the queen and all unsealed brood; note this in the book, and write "4" in the sixth column as the date for next attention. On the next day (the fourth) I give them brood from a choice queen, and mark them for examination on the 12th, when I expect to find queen-cells capped and ready to cut out. July 12 I cut out all the cells except one, and dispose of them by distributing them among queenless colonies, or by placing them in separate cages in a queen-nursery for future use. July 20, according to previous record, I find the cell, which I left in No. 72, hatched. I remove the cell-protector, if such has been used, and give a comb with eggs (or a small square of comb from one of my breeding-queens, inserted in one of the old combs); "28" is marked in the sixth column as the date when I expect to find the queen laying. Now if, on that day, I find good queen-cells on this comb (given on the 20th), I know that the queen has been lost; but if such queen-cells have been destroyed I know that she is all right, even if I do not see her; and if I find no eggs yet, I conclude that she has not begun laying, and make a new date, three or four days later, for further examination. If, however, the bees had started cells on a piece of comb (or a whole one) from one of my breeding-queens, the loss would not be so serious, as in all probability they would soon have another



BEESWAX-MOTHS—SEE EDITORIAL, PAGE 733.

young queen, as good as the first one. But if every thing has gone as at first expected, I find the original young queen laying. I now clip her wing, and enter in a separate record-book, the "Apiary Register," for instance, the time when she was raised and clipped, the number of colony in which her mother is found, or some special mark indicating the strain to which she belongs, besides her size and color. Later I will add how her workers turn out in regard to purity, etc. As there is nothing more to do with No. 72, the space for future examination (in sixth column) is crossed out, and that colony is dropped from further attention, at least for the present.

This system may, on first reading, seem complicated, as it takes so many words to explain it; but it is, in reality, very simple when one gets used to it. In fact, I do not see how I could manage an apiary of over 200 colonies, and attend to requeening and other matters at the proper time, without it. Nothing is forgotten or omitted which ought to be done, and every thing is done at the right time. If it is not possible or convenient to attend to a colony marked for a certain date, it is transferred to the next day and attended to in preference to any thing else.

On separate leaves in my note-book I keep a record of colonies that need requeening, so that, when I have a surplus of queen-cells, I know exactly where they may be disposed of to advantage. On other leaves I mark colonies needing brood or having brood to spare; needing honey, or having honey to spare, etc.

Those who have had occasion to kill queens for supersedure, and have used their fingers for this purpose, know that the fingers acquire a strong scent of the queen, and that bees will be constantly running over the finger-tips, attracted by this scent, and that one is in constant danger of pinching bees and getting stung while the fingers retain the scent. I now use a common three-pronged table-fork to catch and kill queens with, thereby doing away with the necessity of handling them at all.

AN AID IN FINDING QUEENS.

In hunting up queens for removal or clipping, I use a small board, a little thicker than the height, and a little longer than the width of the entrance. The width of the board is immaterial—two or three inches will do. This board is beveled off on the ends and on the shortest edge, so that it can be easily pushed into the entrance before removing the hive-cover. It prevents the bees from boiling out at the entrance when the hive is opened, and does away with a great deal of the excitement frequently occuring at this operation, and particularly when the front comb, next to the entrance, is removed. As a rule, that comb, when the frames run parallel to the front of the hive, should be left to the very last, as its removal causes great excitement among the bees; but this is almost entirely done away with by the use of the entrance-stopper. The bees may boil up over the frames, but will quiet down by the use of a little smoke. The queen will frequently be found on this front comb, to which she gradually retires as the other combs are lifted out; but if she is not seen on any of the combs she will be pretty sure to be in one of the front corners, next to the entrance.

In conclusion, I will only give this warning (with a big W): Do not forget to remove the stopper when you close up the hive, or you may smother a good colony.

N. B.—I haven't smothered any yet, but I have several times forgotten the stopper for a few minutes, or until I needed it the next time.

Independence, Cal., Aug. 15.

FEEDING SIMPLIFIED.

A BIG IMPROVEMENT—ONE THAT PROMISES TO SAVE BEE-KEEPERS MUCH; A VALUABLE ARTICLE.

By Dr. C. C. Miller.

I've been having lots of fun trying different ways of feeding. It seemed that, to do all the feeding I should want to do this year, the percolator I had would make too slow work. Yet after trying it, and finding how little work it was, I was loath to go back to the old plan of boiling syrup. I might make additional percolators, or a larger percolator; but while I was about it I thought I might as well try to have a plan by which the percolating would be done on the hives. If I could just carry the dry sugar to a hive, also the water, it would save a good deal of work, as well as annoyance from robbers. Especially would this be desirable with the out-apiaries, for only the sugar would have to be taken there, the water being readily at hand.

Another point of advantage would be, that, to each colony, I could more easily give just the amount I thought desirable; for with syrup it isn't so easy. You may have a measure that is exact; but with the dripping stuff there is likely to be some variation, and there may be some variation in the strength of the syrup. But the dry sugar is uniform in strength, and easily measured to a quarter of a pound. Before trying the thing on any large scale, I tried small quantities; and in this I think I struck on what might be very satisfactory for those who want to practice

STIMULATIVE FEEDING.

First, I tried letting the bees directly on the sugar. In England a damp quality of sugar is used, and what is called dry feeding is much practiced. I thought I would vary that by taking granulated sugar and wetting it. I nailed a bottom on a T super, and made an inch hole in the bottom for the bees to come up through. Remember, this was hot weather in August, and it took no baiting to get the bees to come up. In the super I set a saucer, poured granulated sugar into it, then poured on water. The bees promptly went to work at it, worked out all the moisture, and left the greater part as dry sugar. Of course, by pouring on more water more feed would be taken; and I can easily see that, for stimulative feeding, where fresh feed must be given every day or every other day, here was an excellent plan. Just put into a super prepared as I have mentioned, or into any box on top of the hive, a tin dish containing 5 lbs. of sugar. Pour water on, but not enough to have any standing on top. Next day it will be worked dry, and you will put on a little more water. The less water put on, of course the slower the feeding will be. You will see that this stimulative feeding will be simply giving a little water each day.

I tried putting on more water at the first, so as to have it wet enough for the bees to carry it all down without any second filling, but I failed. To have enough water on to dissolve all the sugar, I left the water standing on the top with so little sweet in it that the bees didn't care for it, and with the chance of drowning if they did work on it. Then I thought I would try

PERCOLATING ON THE HIVE.

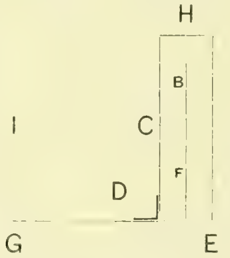
First, on a small scale. I took a tumbler, filled it half full or more with water, then filled it up with granulated sugar. I laid over the tumbler a piece of flannel large enough to completely cover it, and over this I turned a saucer upside down. Then taking hold of the saucer with one hand, and the tumbler with the other, I quickly reversed the whole business. I put this into the super over the hive that I have already mentioned, and in about 48 hours it was empty. This would also do well for stimulating, and I'm not sure but it would be well to have the tumbler two-thirds full of water before filling up with sugar. No unusual machinery is needed; cups and saucers are always on hand, and any cloth, cotton or woolen, will answer. Several tumblers can be used on a hive at a time, or a fruit-can or other larger vessel can be used, in the case of feeding up for winter.

I tried a jelly-tumbler with a tin cover. The bees couldn't get any thing out of it. Then I bent the cover open a trifle at one spot so the bees could get a very little, and it took about two weeks for them to empty it. So the matter can be gauged for fast or slow feeding.

Then I studied on a plan for something larger. A percolator like the one I had been using, only larger, could be arranged to operate on the hive; but to have a number of these would make troublesome storing, to say nothing of the expense. Would a percolator work if it were shallow instead of deep? Was it necessary to have a thickness of several inches of cotton for the syrup to percolate through? The working of the tumblers seemed to show that it was not; and, really, all that I could see to be necessary was for the syrup to be allowed to come through slowly and at the bottom. A little crack in the board would be all right if small enough. It must be at the bottom; for if at the top, only water would come through.

I could easily try the thing with a Miller feeder. I took one of the original pattern, stuffed cotton rags under the board where the syrup passes through, put a mixture of hot rosin and beeswax in the corners so nothing could get through except at the bottom, put it on a hive, poured in sugar, then water, at the rate of five quarts of sugar to four of water, and found it "all my fancy painted it."

Having a goodly number of Miller feeders, I didn't need to get up any other feeder; but with what experience I had had I felt I wanted to make at least one feeder such as I would now make if I had none. I made one a little simpler than either the original Miller feeder or the one with Warner's improvement, but on the same principle. The old Miller feeder had two feeding-places for the bees, one on each side; the new one has two feeding-places in the middle. The percolating feeder has only one feeding-place, and that is at one end. This allows, by having the hive tip a trifle, a full supply at the feeding-place just as long as any feed is left, and I find one end gives room for the bees, without crowding.



Those who are familiar with the Miller feeder will need no further description. Others may understand it from the diagram showing a transverse section of one end of the feeder, the only end where any feeding is done. Take a T super, or a box that will nicely fit over the hive, with a bottom ⅜ inch short, leaving the passageway E for the bees to get up through; ⅜ inch from the end A of the super put in another wall, B, extending to within ⅜ inch of the cover H, and fitting tight at the bottom. A third wall, C, with a ⅜ space between it and B, comes clear to the top and down to the bottom; but in putting it in, two thicknesses of flannel are put under it, or between it and the bottom G.

When the feeder is put on the hive, the mixture of sugar and water is put into the main compartment; it soaks through the cloth at the point D into the small compartment F, where the bees get it, coming up from the hive through the opening at E.

On the very night after I had finished making this feeder I had a visit from the junior editor of Gleanings. In the morning we went out and put it on a hive. I carried the sugar, and he carried the water and a quart cup. I put in 10 lbs. of sugar, and said to him, "Now put in four quarts of water."

"Why not put in five quarts?" said he. "H. R. Boardman has come to the belief that it is better to use equal parts of sugar and water in feeding."

"All right," said I. "Five quarts it is. H. R. Boardman is a pretty solid sort of man to follow. Very likely he is right."

I had thought I was pretty radical to use, for every 5 lbs. of sugar, 4 lbs. of water instead of two, the orthodox quantity; but it seems to work all right with equal quantities, and, as Doolittle would say, it's more according to nature, for nectar is pretty thin stuff.

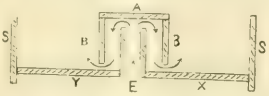
I was anxious to have that feeder show off in good shape while Ernest was here; but the bees didn't touch the feed till I baited them in. Then they worked it in good shape, and in about 48 hours it was dry. I wish I had 40 like it. But I'll stuff in rags and make the old Miller feeders do.

Marengo, Ill.

[In my opinion, Dr. Miller has made what *promises* to be one of the most important improvements, in the way of feeding, that has been made for many a year. Of course, the idea of using dry sugar, and pouring just simply water on it, to make bee-feed, is old. Years and years ago, the senior editor of this journal experimented a good deal, but he did not succeed in attaining satisfactory results. In all his experiments the sweetened water would be taken up by the bees, leaving the dry sugar to stick to the feeder. In order to get the bees to take up all the sugar, it required constant moistening with water. This took so much time and bother that he concluded it was better to pour boiling water on the sugar and make an actual syrup, the same to be poured into the feeders from a syrup-can. But Dr. Miller has taken a long step in advance, in what apparently is a success. That being the case, all he has to do is to carry the dry sugar and a pail of water; pour an equal quantity of each into the feeder, close the hive, and the work is done. You will observe he has simply adapted the percolator idea to the feeder; and herein lies the success of the plan.

We have been trying the plan outlined above by Dr. Miller, and so far we are pleased with it.

Although I saw the plan working successfully at Marengo on my recent bicycle-trip, when I got home one of the first things I asked our apiarist to do was to try this new way of feeding. I was in such a hurry that I could not wait to get common flannel, but asked him to go to the book-binding room and get some common cheese-cloth and poke it under the inside partition of the ordinary Miller feeder, as we make and use it. That you may understand a little better, I herewith show a cross-section of the feeder in question. The cloth was crammed in under the boards B, right where the arrows are coming out into the larger compartment; and it was crammed in tight enough so as to make the syrup percolate through it, in order to get into those narrow passageways under A on either side. Well, what was the result? "All that my fancy painted it," in the language of Dr. Miller, where the cloth stuffing was properly put in. Where we failed to crowd the cloth in tight enough, some of the water escaped before it had incorporated very much sugar; but in all other cases the bees used up all the sugar syrup.



I forgot to tell you that we put into the feeders equal parts of sugar and water, and, of course, the syrup, as the bees got it, was thinner than they ordinarily get it—more like the nectar from the field.

As Mr. Boardman says in another column, this syrup will never granulate, because the bees ripen it; and right here I ought to credit Mr. Boardman with the idea of making the syrup of sugar and water, half and half. The fact that Dr. Miller was leaning the same way, only shows that great minds sometimes run in the same channel.

Without percolation, the water would not have time to take up the sugar sufficiently before the bees would have it taken down into the brood-nest. Well, when there is not enough water to take up the sugar, the latter simply dries, because the bees will take away the former in very short order. The cloth seems to prevent the water from escaping before it has had time to take up all the sugar; now, then, by putting in an excessive amount of water—that is, perhaps twice as much as is necessary for actual saturation, the sugar is more apt to dissolve, and, when dissolved, to percolate slowly through the cloth.

I had intended to prepare some illustrations; but the matter seems to be so very important that it ought to be given to our readers at once for what it is worth, and after all I think they will be able to catch on to the idea.

Perhaps the majority have not already in use the Miller feeder. Well, as Dr. Miller intimates above, you can secure the results by the use of a tumbler, a piece of cloth, and a saucer. But suppose you desire to feed faster, you have plenty of upper stories that you can put on to the hives. The same plan, perhaps, can be secured by using a gallon crock inverted over a piece of flannel, the whole set on a plate or large tin pan.

Later.—Since writing the foregoing we have tried three one-gallon crock feeders, inverted over several thicknesses of cheese-cloth on plates. So far as I can judge, the experiment seems to be a success; but instead of using flannel we used on one plate four thicknesses of cheese-cloth; on another six, and on another eight. The last mentioned seems to give the best results. In each crock was, of course, put an equal quantity of sugar and water by measure; and in 48 hours, when they were examined, the syrup was all taken out of two of them, and in the third a little yet remained. In what is regularly the bottom of the crocks was a slight residue of sugar still clinging. The water had probably settled away from it. This would make no trouble, because the crocks can be used on other colonies, or the same one if more feed is required, putting in more sugar and water as before. The slight residue of sugar still in the crock would make no trouble with a fresh supply. I hope others will try this experiment and report results. In the meantime we shall continue the experiments on a larger scale.

This plan of feeding by percolator feeders is a little slower—that is, it takes the bees about twice as long to get the same amount of feed as by the old plan, when syrup is given to them; but this is rather an advantage; the syrup, being thinner in the first place, is taken down more slowly, and will be ripened better.—Ed.]

NOTES OF BICYCLE TRAVEL.

By Ernest R. Root.

For my bicycle-trip I adopted the ordinary bicycle-suit—knee-pants, long stockings, and sweater—in preference to the suit of the ordinary civilian. While it made me look (or, rather, *feel*) a little odd in the presence of well-dressed people, you say, with me, that it was simply the exercise of good sense to dress for comfort and easy action rather than for *looks*. Well, in the writing of these notes I have felt that, possibly, the conventional cloak designed to cover up individuality, as well as a multitude of sins, and sometimes called the "editorial we," was awkward for easy action here. So, in order to "sling myself," or, rather, not feel hampered, I have decided to adopt, under this heading, the easy "bike suit," or, what may be more properly termed here, the singular pronoun I. So much for preface.

On the morning of the 15th of August I left home for an extended bicycle-tour among the bee-keepers of Western Ohio and Northern Michigan, Northern Illinois and Southern Wisconsin. After a run of an hour and a half I found myself 20 miles on the way; and another hour brought me to the home of H. R. Boardman, some 12 or 15 miles further. I had sent a letter to friend B., at East Townsend, stating that I would be there on the morning of the 15th, but it seems I got there before the letter. However, I found him sitting in his hammock beside his apiary, apparently waiting for "something to turn up;" and it did indeed in the shape of a wheel-tramp, or crank-pusher, from Rootville. As usual, he was glad to see me, and we walked into the house. We each resumed easy seats, and then I explained that I was out to find, if possible, the right size of bee-hive—whether, indeed, the eight-frame capacity was sufficiently large for the average bee-keeper in the average locality, or whether it would be desirable to have a larger brood-chamber divided into sections, *a la* Heddon. Mr. Boardman smiled a little. Said he, "I doubt whether you will get a satisfactory answer to your question."

"What do *you* think?" said I. Well, he did not know; but the Boardman hive, containing 9 frames, and a little larger than a foot square, answered his requirements.*

As if unable to *settle* this question for me, he turned quickly to the subject of feeding bees, along which he has experimented to a considerable extent. A year ago he had mentioned some experiments that he contemplated making; and now, twelve months having elapsed, he was prepared to give me some interesting results. Said he, "Some tell us, that, to make syrup for bee-feed, sugar and water should be used in the proportion of 20 lbs. of the former to a gallon of the latter. Others say, mix in the proportion of two parts of sugar to one of water; but after experimenting 'along this line,' as Doolittle would say," giving me a comical wink, "I came to the conclusion that the amount of water was too small; and now I make a syrup of equal parts of water and sugar."

"Equal parts by weight or measure?" said I.

"It does not make any difference," he replied. "Weight and measure are practically the same in this case." Continuing he said, "I learned that syrup made in this proportion, fed to bees, would not granulate. Of course, it makes a thinner syrup, which the bees thicken to the right consistency, or, if you please, *ripen* it; and I never saw any of this kind of syrup that would granulate. Now, they used to tell us," he continued, "that we must boil the syrup a long while in order to make sure that the sugar is thoroughly incorporated in the water; but I do not even do this. I just pour the water right on the sugar, and place the feeders at the entrance, as you saw on the hives as you came in. Again, some recommend putting in vinegar, and others honey, to prevent granulating. I never, with the ordinary thick syrup, could see that it did any good."

I do not remember whether he regards it necessary to heat the water; but, if I remember correctly, he considered it of but little importance either way. Perhaps I may as well interpolate right here, that Dr. Miller had also been experimenting "along this line," entirely ignorant of what Mr. Boardman was doing; and, strangely enough, he had arrived at about the same conclusion; but he put in four measures of water to five of sugar. He had found it was not necessary to even heat the water. He poured the sugar into the feeder, and then the water, and that was all there was of it. He found that, by making the syrup thinner, as did Mr. Boardman, the bees would ripen it better, and make a winter feed that would not granulate; and, secondly, it was much more convenient to prepare a syrup in this way. I will not say more of Dr. Miller's feeding, because, under his own signature, in another column, you will find he has more to say on this, and I will refer our readers to that.

"I have learned another thing," said Mr. Boardman, "and that is, it pays to feed; that it pays to give the bees a large amount of stores for winter, and then in the spring feed them enough to keep brood-rearing going at a lively rate. Yes," said he, "I feed clear up to the honey-flow. If the crop is to be a short one, the brood-nest will be full of brood and syrup; and just the very day that honey is first stored, it will be crowded into the sections, just where

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*I forgot to say at the outset, that I stopped a few minutes about four miles out, at the apiary of Vernon Burt. I put these same questions to him. Although he was using both the eight and ten frame Langstroth hives, he was rather of the opinion that the latter gave him more bees and more honey per colony.—E. R.

I want it. As the result of this I got a crop of honey while my neighbors all around me secured absolutely nothing. They took the ground that it was folly to waste so much money for sugar for feeding the bees when they brought no returns last year. But I took my chances, and, as a result, the sugar has been paid for several times over."

The syrup cost him, we will say, perhaps three or four cents a pound; and the honey he will sell will probably bring thirteen or fourteen. His neighbors' bees, probably, bee for bee, gathered just as much honey as his; but it all went into brood-rearing and the brood-nest. Mr. Boardman's all went into sections; and not only that, he had more bees as the result of the sugar-feeding, to gather the crop when it did come.

All of this was interesting to me; and, so to speak, I sat at the feet of Boardman as he went on to tell some more interesting observations. Said he, turning the subject slightly, "A good deal has been said 'along the line,' to quote Doolittle again, of bees gathering honey from only one source at a time. I believe there is a good deal in this. When food of any sort comes into the hive, especially if it is fed to them, the field-bees at once try to find in the fields the peculiar scent of this food. If basswood honey comes in, they will abandon the clover and hunt for the strong minty flavor of the linden. Why," said he, "at one time I put a little vinegar into my sugar syrup, in my earlier experiments, to prevent its granulating. This syrup I fed to the bees, and shortly the bees poured out from their hives pellmell for the bunghole of my vinegar-barrel, which was empty. They never before had shown a strong liking for that barrel. I was somewhat astonished, but at that time I did not know how to account for it. At another time, to prevent the wooden part of my feeders from becoming affected by the weather I dipped them in linseed oil. When they were dry I fed the bees from them as usual with ordinary syrup. At this time I was painting my house, and, quite to my astonishment, the bees showed a wonderful liking for the paint on the house—something they had not done previously, although painting had been going on prior to the time of soaking the feeders in linseed oil. The fact is," said he, "the syrup probably incorporated a slight flavor of linseed oil from the wood of the feeders. As soon as food was given to them they rushed out, as they always do when fed, to find the source of that peculiar flavor; and, of course, they found it on the freshly painted sides of the house."

It was now dinner-time, and I was given an opportunity to wash up after my dusty ride. While in the wash-room I heard Mrs. Boardman say, "Dear me! you will talk Mr. Root to death."

Mr. B. laughed, and repeated to me what his wife had said.

"Why," said I, "that is just what I came for; and Mr. Boardman seems to be so full of practical experience that I *want* to hear him talk."

"Yes," said she, smilingly; "but when he gets a going he does not know when to stop."

"Well," said Mr. Boardman, apologetically, "it is not often I have a chance to talk bees; and when one from Rootville comes I feel like letting him have all he wants."

At the table the subject turned to foundation-making, and I asked him if they had had any difficulty in making it, and how they managed to cleave the sheets from the rolls after they were run through; for beginners, and those who make foundation in a small way, generally have a good deal of trouble "along this line."

"We have no particular trouble. We simply cut off a little narrow strip, run it into the mill backward—that is, turn the mill backward—feeding the sheet in at the *front* side. This little strip is run in just far enough to leave about an inch sticking out. Into the *back* side we run a full-length sheet, turning the mill in the right direction. The end of this sheet sticks to the little sheet run in backward; and as it comes out on the other side an attendant pulls on the edge of the strip not embossed, and pulls out not only the little strip but the long sheet adhering to it, practically free from the rolls. In this way we run through all the sheets. I discarded the long laborious job of picking the sheets, to say nothing of scratching the faces of the cells."

Perhaps I might remark, in passing, that, as foundation-makers, we have no particular trouble. Our mills are all geared to power, and, of course, they can not be run backward very well. The sheets are run in in the usual manner; and if every thing is in right shape, the temperature of the water right, from which the sheets are taken, and the mill right, the sheets will cleave with very little trouble; but I have given that little kink of the trade, not because it is particularly new, but because it may be valuable to many who are making foundation in a small way.

After dinner we went to the apiary, where Mr. Boardman explained the construction of his feeder. He feeds almost entirely from the entrance, and very successfully too. Although there was no honey coming in from the field, the bees were very quiet and peaceable; for Mr. Boardman was still feeding slowly for winter use. I do not know whether he is ready to describe his feeder or not; but I have asked him to explain it when he feels that he has it fully perfected. As an entrance feeder I believe it is the best one I have ever seen. It certainly works beautifully in Mr. B.'s home yard.

"Here," said Mr. B., advancing toward the end of his winter repository, "is where I feed the bees water—just clear water. This effectually disposes of the trouble of bees drinking at troughs and annoying horses."

On a large shelf was quite a row of his feeders containing nothing but water, and the bees were patronizing them in great shape indeed.

"Now," said Mr. Boardman, "I want to show you how my bees are building comb, for I see you have illustrated comb-building, by Mr. Hutchinson. I can show you the same thing right here."

So saying, he proceeded to light the Crane smoker.

"By the way," said I, "how do you like it?"

"It is a splendid smoker. At first I thought it a great awkward thing, and did not believe it would suit me at all; but now I like it better than any thing else I have seen. It has the capacity and the blast."

I then asked him if the rubber, the flexible part of the bellows, gave him any trouble.

"Not at all."

"We have had one or two complaints," I said, "and I am interested in knowing how it is doing. The use of rubber in place of leather is quite an innovation, and we used it because it was recommended to us by a bee-keeper who had used it for four or five years. It is more flexible, more impervious to air, and is less affected by dampness or water."

"Yes," said he, removing one side of one of his hives, "you will notice I do not have to handle a single frame. The bees have done all that comb-building within the last two days, and all under the stimulus of syrup-feeding, as you see."

Yes, indeed, there was a fine lot of combs building, and all worker too.

"Oh, say!" said I; "I ought to be going; but I want to know whether you have been using fixed distances."

"Yes, sir, I have—that is, I have been nailing strips on the sides of my ordinary brood-frames, making them something like the Hoffman. But I yanked them off. No, I must say I do not like fixed spacing for me."

"Well, how about the burr-comb question?" said I, putting another one at him.

"Well, I am not bothered very badly with them, and I get rid of their nuisance largely in this way: I space the frames closer together."

"What spacing does that make?"

"Somewhere about 1⅓ from center to center. That, you see, is slightly less than 1⅜."

He showed me that there was a decrease of burr-comb building on hives where close spacing was practiced, as against those where the ordinary 1½ or 1⅜ spacing was used.

"Say! I must be going," said I. "How far is it to Toledo?"

"Sixty-five miles."

"Whew!" said I; "I have got to make it tonight." And then I mounted the wheel. Mrs. B. looked a little doubtful. I had previously told Mr. B. that I could not stay more than an hour or so; but his talk was so interesting and profitable, and dinner smelled so good in the other room, I could not well resist; and after dinner there were so many interesting things that he had to tell me, that I stayed longer than I expected. I finally mounted the wheel, feeling that I had had a profitable visit. I made a rush for Norwalk. I arrived there in fair time. Another spurt of five miles brought me to Monroeville; and another spurt made me feel pretty much like sitting down, for I had struck quite a little sand. I was sweating and puffing away, and at my left I saw a wheelman fussing with his wheel. Evidently something was wrong or broken.

"Sand rather bad," said I, and passed on. As I did so I felt as if I was not acting the part of the good Samaritan in helping a brother-wheelman out of his trouble; but I had not gone far when he caught up, puffing like a steam-engine, and telling me his wheel ran hard.

"My!" said I, "any wheel will run hard in this sand."

"Well, that may account for it."

In a moment more I heard his chain going clickety-clack.

"Here," said I, feeling more like the good Samaritan, "let me fix that."

I quickly unbuckled my bicycle-satchel and drew forth a package of chain-lubricant and rubbed it on, and, presto! how much better it did run!

"Now," said I to my friend, "go ahead a little and I will trail and see whether your chain, or, rather, sprocket-wheels, are out of line." Yes, sure enough, they were.

Again the good Samaritan dismounted and helped his friend to change the adjustment on one side of the wheel.

"There," said he, after we had resumed our journey, "the wheel runs a hundred per cent better—thanks to you. Who are you, and where are you from?" said he.

"My name is Root, from Medina. Where are *you* from?" I said.

"Oberlin."

I soon found that my friend knew some of the old professors under whom I had studied; and we fell to talking about Oberlin, about this and that teacher, this and that building, and before we knew it we were at Fremont, where my friend stopped. It was getting toward dark, and I was told it was 35 miles to Toledo yet, and there was a good deal of sand to get over. That being the case, I decided to take the train. Fortunately one would be in in about an hour. I sat down at the depot, mopping off the sweat, and wondering whether or not Dr. Mason would be at home.

Continued in our next.

We have enjoyed a flying visit from Mr. S. T. Pettit, of Belmont, Ont., one of Canada's veteran bee-keepers. He is fortunate in being grandpa to the Holtermann quartette, the rising junior editors of the *Canadian Bee Journal*, whose pictures appeared recently in this journal.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO, N.Y.

REARING QUEENS IN LARGE BROOD-CHAMBER.

Question.—I use a large one-story hive holding 18 frames, running parallel with the entrance, so I can not very well raise queens in an upper story by the plan given in your book. How would you proceed to rear queens in such a hive as the one spoken of above?

Answer.—Your hive is very similar to the one which I used when the plan of rearing queens in a hive having a laying queen in the same came to my vision. I had made four hives on the "long-idea" plan, which was brought to public notice some years ago by D. L. Adair, of Kentucky. These hives were used a few years for extracted honey, and laid aside, inasmuch as I found that it was easier to produce extracted honey by the tiering-up plan. Soon after, D. A. Jones, of Canada, came out with his new plan of raising comb honey, as I gave in GLEANINGS a few months ago; and these long-idea hives proved to be just the thing to try the Jones experiment with. I changed the combs and bees from my regular hives back into these hives again, put in the two queen-excluding division-boards, so as to shut the queen on five frames in the middle of the hive, according to the plan, when the first thing which came to my notice in opening the hive a week later was sealed queen-cells wherever there was any unsealed brood left which the queen did not have access to. These I carefully removed, till there came a time when work crowded so that the removing of these cells was neglected till they hatched, went out of the hive, and were fertilized and commenced to lay, so that I had two laying queens in these hives. It will be remembered, from what I wrote a few months ago, that there were wide frames of sections between the combs where these cells were reared and the queen-excluding division-boards which kept the young queen in her place, and these wide frames had separators on them which tended to keep the young queen from going to the perforated zinc and quarreling through it with the old queen. As I soon became disgusted with the whole plan of long-idea hives, either for the production of comb or extracted honey, the upper-story plan was used as given in my book. But I have found, from long experience, that, wherever there is unsealed brood on which the bees cluster, but from which the queen is excluded by means of perforated zinc, enameled cloth with a hole or two in it, or a division-board with a crack in the same, the bees will build queen-cells on these combs; and if it is so that the young queen hatching from these cells can not "touch noses" with the old queen, and if there is a place of exit from the part of the hive in which this queen hatched, she will in due time become fertile, and go to laying, the same as she would if there were no other queen in the hive. Hence to rear queens in such a hive as our correspondent uses, all we have to do is to fix the same so that two or three combs of brood can be set in one end of the hive; and between these combs of brood and the apartment having the laying queen, put two queen-excluding division-boards, these latter being half an inch or more apart, so that the queens can not touch each other. From past experience, my way of fixing such a hive would be to keep the laying queen in the rear end, on as many combs as I wished her to occupy, placing next her apartment a queen-excluding division-board. I would now place two empty combs next this division-board, and immediately in front of these put in another queen excluder. I would now fill out the remaining space between the last excluder and the front end of the hive, or entrance, with combs of brood and honey, and raise queen-cells there, and have them fertilized from the same, as I gave in my book. Now, while I have told what I would do when using such a hive as the correspondent says he is using, yet I feel it is my duty to say that, in a locality like Central New York, such a hive is not the one for the practical bee-keeper to use if he wishes to produce the most honey with the least capital and labor.

FEEDING WHEN REARING QUEENS.

Question.—When you rear queens in the fall of the year, or at any other time when the bees are not getting honey from the fields, how much do you feed each day, and how do you feed?

Answer.—I feed about a pint a day, or enough so that the bees will store considerable in the combs and start to comb-building, which will be shown by the bees beginning to lengthen unsealed cells, the same as they do when honey is coming in moderately from the fields for a few days. All should know that comb-building does not start at once, as soon as the bees are fed, or as soon as they begin to get honey from the fields; but in three or four days after sweets are obtained, wax secretion begins, and the combs begin to show the same. If the colony is very strong in numbers, more should be fed; for a pint of feed would be hardly sufficient for all hands to obtain a taste were there from 60,000 to 80,000 bees in the hive.

For feed, I make it the same as for winter feeding; namely, 15 lbs. of water put into a suitable vessel, and set over the fire till it boils; then slowly stir in 30 lbs. of granulated sugar, so that it shall not settle to the bottom of the vessel and burn (as granulated sugar is quite apt to do if not stirred) while pouring in, and the whole brought to a boil again. Now set from the fire and stir in 5 lbs. of extracted honey; or honey in the comb will do just as well, but it is more expensive, and you will be to the trouble of removing the wax, else it will not work well in pouring into the feeder. This is for winter feed, and I always make it this way, as this will keep the year round without souring or candying or crystallizing. Now take of the feed the amount you require for one feeding, and add a third in bulk of cold water, stirring a little to mix, when it is of the right temperature and of the right consistency to feed for queen-rearing. Each time after this, when the feed is cold, you will take the same amount of *hot* water, stirring this in to the amount needed for one feed, thus giving the right temperature and consistency again. When I say that thin warm feed gives the greatest possible stimulus to bees for brood-rearing, while such feed will soon sour if left standing in a dish, it will readily be seen why the advice above is given, without further multiplication of words. For a feeder I use a division-board feeder, the same as I described in GLEANINGS a few years ago, and the same as is described in my book; but the illustration given in my book is that of Prof. Cook's feeder, and does not correspond with the description at all. If you make a feeder according to the directions given, paying no attention to the illustration, you will have just such a feeder as I use. But this matter of feeders is not at all important. Any dish or feeder from which the bees can take the feed without being drowned or enticing robbers will answer all practical purposes.

Heads of Grain, FROM DIFFERENT FIELDS.

THE WILLIE ATCHLEY CELL-CUP PLAN.

I see by GLEANINGS that Mr. Doolittle does not make a success of my way of grafting queen-cells. I send you by this mail two cells that queens have hatched from. See the old cocoons still there. If he will make his colonies broodless and queenless for 48 hours, then put in wax cells, he will find a great difference. I can not succeed in getting *all* good queens by any other method. If larvæ two to ten hours old are used, and good strong colonies when honey is coming in, or feeding, it is bound to succeed. WILLIE ATCHLEY.

Beeville, Tex.

THE N. A. B. K. A. ON THE WEST SIDE OF THE MISSISSIPPI; FREQUENT SHOWERS IN ILLINOIS.

Didn't we have a session of the N. A. B. K. A. at Keokuk, Iowa? and is it not on the west side of the Mississippi River? I think Mr. Benton was not there. Don't you remember that the business men of Hamilton sent carriages to bring us across the river to the Dadants?

The bees are not going to send me to represent them at St. Joseph this year. This is the fourth poor year for honey, and they can not afford it. Last Friday night, Aug. 24, the bees held a grand concert, the first one of the season, and have continued them since. There have been frequent showers during the last fortnight, and the fall flowers in the Illinois River bottoms are blooming. The lands along the river, subject to overflow, are very rich, and Spanish needles, asters, polygonum, and other fall flowers, grow luxuriantly.

Peoria, Ill. MRS. L. HARRISON.

[Yes, we had several sessions on the west side of the Mississippi, and this fall we hope to have several more at St. Joseph; moreover, I hope those naughty bees, or, if you prefer, naughty seasons, will not keep you away from a good convention which we expect in Missouri.

When I was in the northern part of your State on that recent "bike tour," I saw not a drop of rain nor any signs of any having fallen for weeks. If I could have been convinced that you had good roads and lots of rain, and could have known, as I now know, of the poor roads in Southern Wisconsin, I verily believe I should have turned that wheel southward. However, I do not regret the hard hill-climbs of that State when I think of the kind reception received in the homes of a few of the Wisconsin bee-keepers.—ED.]

A CORRECTION.

On page 703, line 12, column 1, you have "The Champion was originated from *Soto* 30 years ago." Please correct. It should read, "The Champion was originated from 20 to 30 years ago." The mistake is probably due to my bad writing. CHAS. MOMM.

Irvington, N. J., Sept. 4.

[The mistake was due to the fact that the writer ran the two words together so as to look exactly like a name. The matter was submitted to our best readers, who concluded that "Soto" was meant. This matter of running words together in writing causes an endless amount of difficulty in reading manuscript. Another common fault is to separate words, causing the syllables to look like words. We take great pains with every line we print; but sometimes the ingenuity of a bad writer is too much for us. As a whole, friend Momm's writing is much better than the average; but as he did not make a good 20, nor lift his pen when he made a bad one, a blunder was occasioned. —ED.]

DO WORKER-BEES TRANSFER HONEY TO YOUNG BEES?

Some time ago I read how bees gave up their honey to the young ones that were too young to fly. I can not think it is correct—at least, not always. First, why should the Creator of all overlook the first principle which is contrary to all our domestic creatures? They all either idle away their young days or else play. Now, if bees do go to the trouble and time of using the nectar twice, how is it with a new swarm of all old flying bees, which always work with such vim? I have always noticed, as I remove quilts from sections or extracting-combs, that almost every bee is an old one—scarcely any young there. But on frames of brood there are always many. If I am in error I wish to be converted to the right side. We are all easily led into error—at least I am.

Hallowell, Me., Aug. 24. E. P. Churchill.

[I refer this question to Mr. Doolittle, who is one of those who hold that the field-bees transfer their loads of nectar to the young bees. —Ed.]

SUCCESS WITH THE WILLIE ATCHLEY CELL-CUPS.

In Gleanings, April 15, p. 330, G. M. Doolittle wonders how many have made a success of Willie Atchley's plan of raising queens. I have made a success of it, but I tried a good many times before I did so; and, like Mr. Doolittle, I had them rolled to the entrance. I was pretty near giving up in despair. I think that making the cell-cup stick just right has a good bit to do with it. I made mine by Willie Atchley's directions, but I made the worker-cell a trifle larger; but if any one goes by his stick he will not be far out. I find that, the older I get the comb, the better the little cups will lift out. I tried combs that were not very old; but they stick too tight, and tear. I have raised a few fine-looking queens by this plan, and hope to raise more next summer.

I should like to ask Mr. Doolittle this question: Can a five-banded queen be bred, or a queen whose bees are five-banded, from pure Italian queens? F. Low.

McLaren Vale, South Australia, June 23.

A GOOD WORD FOR THE PELHAM MILL.

Referring to the suggestion of R. C. Aikin, July 15, to obviate the inconvenience caused by the end of the sheet adhering to the dies of the roller in making foundation, I would say the Pelham mill "gets over" the whole difficulty by means of a very ingenious and highly satisfactory device; and while the mill is sold at a low price, a thorough test of hundreds of pounds of Pelham foundation has given the utmost satisfaction—the only precaution necessary being to wire full sheets to prevent sagging. This, however, is imperative, owing to the unique construction of the septum.

Titusville, Pa., July 20. H. E. Hill.

DEAD BROOD; ITS CAUSE AND CURE.

I have had several cases of the new brood disease, which at first I decided was foul brood. For some cause one colony that was affected superseded its queen, and I found every thing cleaned up in nice shape before the young queen commenced to lay. I then made the other affected colonies queenless, and returned the queens as soon as the bees had cleaned up nicely, which they did in every case.

NATURAL-COMB BUILDING.

I tried having the bees build combs in wired frames with inch starters, and had very good success. I think that, where we want to give only starters, the wires will prevent combs from being bulged. I have had very nice combs built that way. J. Lawrence.

Dallas, Tex., Aug. 25.

[Removing the queens in the case of dead brood may or may not effect a cure. In a large number of cases the disease, if such it be, went off of itself without any thing being done. Again, we have tried taking queens from colonies having a few cells of dead brood, and the disease not only went away from the affected colony, but the one to which the queen was given *remained* healthy. Prof. Cook thinks feeding cures; but if he had done absolutely nothing, I believe the disease would have disappeared itself just the same. So far I incline to the opinion more than ever, that overheating is the cause.—Ed.]

STINGLESS BEES IN COSTA RICA.

I beg to add the following statement to the remarks of Mr. Chas. Norman, in Gleanings, p. 511, on stingless bees:

In Costa Rica there are about five known kinds of stingless bees; but only two of them are valued for their honey, and are kept for that purpose in rough logs hung down alongside the verandas. One sort, called "jicote" (he-*co*-tay), is a handsome bee, nearly of the size of a German bee. Its color is a brilliant black, with five very narrow golden bands, which, to be discovered, need close attention; hence its general appearance, which at first seems to be a brownish yellow, as compared with the bee of Yucatan, which probably is nothing but the same jicote, common all over Central America. The jicotes build circular combs, with small hexagonal cells for the brood, and large pockets of a blackish wax for the honey, which is taken off once every year. I always keep some logs with jicotes in the midst of my apiary of Italians; but all my trials to get them to work in a more civilized fashion in my Dovetailed hives proved useless; neither have I much hope that some day hybrids may result, as the queen of the jicotes is very distinct from her majesties of other races, her abdomen being a large snow-white ball, full of eggs.

The other sort of stingless bees, called "mariaseca," is rather scarce, but celebrated here for its delicious honey, although to my taste it rather resembles Italian honey mixed with some syrup and plenty of water. The mariaseca bee is exceedingly small—scarcely larger than the head of an Italian drone, and it is leather-colored. Although in appearance the mariaseca seems to be very distinct from the jicote, its way of building brood-combs and honey-bags is nearly identical, except that the wax is leather-colored, and that every thing has much smaller proportions.

Richard Pfau.

San Jose, Costa Rica, C. A.

[I am glad to get this, because it is evident friend P. knows whereof he is writing.—Ed.]

By
ER
Root
Editorial

THE senior editor expects to be at the St. Joseph convention, Oct. 10, 11, 12.

THE last issue of the *Canadian Bee Journal* gives a picture of President E. L. Goold, of the Goold, Shapley & Muir Co., Ltd., of Brantford, Ontario. We are glad to see the face of the head man of the largest manufacturing concern of bee-keepers' supplies across the border.

THE *American Bee Journal* keeps on improving. This time the new feature consists in putting the department of contributed articles into double-column leaded matter. As such it is very readable, and looks well. The other matter, and shorter items, still appear in two columns to the page as usual.

THERE was a young miss up in Michigan (if she is not already a bee-keeper I think she will be) for whom I formed a strong attachment; and that attachment seemed to be reciprocated on her part. Who was it? you ask. Why, it was baby Fern, of the *Review* office. Perhaps I will tell you more about her at another time.

I AM glad to tell you that Dr. Peiro, who writes those interesting talks, entitled "Doctor's Hints," in the *American Bee Journal*, is veritable flesh and blood, and is writing under his own name, and not under a *nom de plume*, as many have imagined. He is a neighbor of Bro. York, and, like him, one whom it is a pleasure to know. Dr. P. and Dr. Miller are a good deal alike in some respects, and it would be fun to see them at convention together some time; for Dr. P., if you must know it, is becoming interested in bees. More anon.

THE following is an editorial that appears in the *Bee-keepers' Review* and we indorse it most heartily. If we are going to give credit, why not give it in full?

> Full credit is the thing to give when copying an article, or even reproducing an idea, that has appeared in another journal. I have more respect for the man who has the audacity and effrontery to steal an article right out and out, and palm it off as his own, than for one who will slyly label his quotations, "An Exchange," "A Western Journal," "An American Journal," and so forth, thus avoiding giving credit to a rival journal. If an article or idea isn't worth giving full credit for, it isn't worth copying.

PROF. COOK writes that he has destroyed every vestige of the new bee-disease (dead brood), simply by feeding. In case the feeding has any thing to do with it, I should be inclined to believe that probably it was not so much due to starvation as to improper food or food slightly poisonous. In our own case, the disease appeared at its worst during a heavy flow from basswood. It is possible that the bees were gathering at the same time something that disagreed with the larvæ, and in some cases caused them to die, resulting in what we have seen in some apiaries—dead brood.

"A MASQUERADE of Stamens" is the title of an article in the September *Cosmopolitan*, in which the writer, Mr. W. H. Gibson, speaks thus of the relations of the bumble-bee and red clover: "This bumble-bee is as necessary a part of the plant's life as are its leaves and petals. The flower has decked itself in beauty and fragrance for his coming, and blushes for him alone. Its nectar is provided with sole thought of him, and its pink portals are framed to welcome him, above all other insects." And the red clover is but an example, he says, "of this law of vital communion and interdependence between the flower and the insect." The whole article is delightfully written, and makes capital reading for those who are interested in knowing the part played by insects in the fertilization of flowers (or fruits).

THAT EDITORIAL "WE."

I AM mad—yes, as mad as can be. What about? Why, under that editorial "we" I find that A. I. R. is being clubbed for some of my editorial sins; and I am madder still because he also gets credit for some editorial felicities that once in a while escape my lips or from the point of my well-worn pencil that I push some. I am going to put my full name at the head of this department hereafter; and when A. I. R. writes any thing under this heading it will be, as heretofore, signed by him. As I said elsewhere, the editorial "we" covers up a multitude of sins, and that multitude is heaped on the senior editor, who is not to blame at all.

It may be a little hard for me to drop the conventional "we;" so if you see it stuck in editorials hereafter, promiscuously along with the singular pronoun, don't be surprised.

Say, Dr. Miller, you remember you gave Mr. Hutchinson, of the *Review*, a pound of figs for dropping "we" to "I."

"BRACE-COMBS AND THEIR ADVANTAGES."

THE above is the subject of an extended article by G. M. Doolittle, in the *American Bee Journal* for Aug. 30. He holds that bees need them as ladders to the supers. Why, he would not have thick top-bars for 50 cts. a hive; and yet there are thousands of bee-keepers who would be willing to pay 50 cts. per hive to have them, to dispense with the nuisance of these same burr-combs. In the very next number of the *American Bee Journal* there is a well-written article from Mr. H. E. Hill, telling of his disagreeable experience with burr-combs, of bee-killing by the thousands, of dripping honey, and the difficulty of removing a lot of supers from hives within thin and narrow top-bars. After speaking of the large amount of unnecessary time occupied in removing those supers, he says, "Narrow, thin, and V-shaped top-bars are still in use in some of the large apiaries, for some unaccountable reason, though I know of no one of experience who is making additions to his grief by extending the number already in use." There are plenty of apiarists, we think, who would be willing to testify that they see no difference in the readiness with which bees enter supers over non-burr-comb frames, or supers over thin top-bars with burr-combs, providing, in the case of the first mentioned, small bee-spaces of ¼ inch are used. For such spaces I can not imagine why bees should want "ladders" to climb into the sections, any more than the good wife wants a ladder to get into the pantry. This same Mr. Hill, above mentioned, in telling of his experience in removing 800 or 900 comb-honey supers, tells of the warping and sagging of the top-bars ⅜ inch thick, and how the supers "clung to the top-bars with a deathlike grip," so that a "small crowbar was necessary to start them," and how "each one dragged with it from one to ten brood-frames." And further on he says, "Bees were killed by the thousands by forcing uneven and bulged combs up with the supers. Every thing was drabbled with honey, even the wheelbarrow, and bushels of brace-combs were scraped from the frames and super-slats." This is only the experience of thousands of others. On my recent visit to Dr. Miller's he told me that, if for no other reason, he must have thick top-bars because of the cleaner honey which they give.

I don't like to take issue with my friend Mr. Doolittle; but he is recognized as such good authority that many, I fear, would follow his teachings, and only be led into the experience as above given.

THAT BICYCLE-TRIP.

FROM Manistee, Mich., I went to Lake Onekama, where I met Walter Harmer, formerly of Manistee, the one famed for his small sections of honey, ranging from one to two ounces in weight. From that point I went by steamer to Chicago; called on Bro. York, of the *American Bee Journal*, and after a visit of two or three hours I pushed the wheel to Marengo, getting lost on the way, and making over 80 miles in the afternoon and part of the evening. The actual distance was only 65½ miles. From Dr. Miller's I pushed the wheel again westward and northward, finally arriving at Browntown, something over 100 miles. Here I met J. R. Reed and Harry Lathrop, both of whom have written at various times for these pages. From Browntown I took the train for about 40 miles to E. France & Son's. It was so very hilly and sandy in spots that I was tired out. From France's I came back to Chicago by train, having had enough of the hilly and sandy roads of Southern Wisconsin. Again I met Bro. York, continuing the visit of the previous week. Now that I have arrived home I can not refrain from giving the last paragraph of a private letter just received, which I feel sure my friend "George" will not object to having appear in print right here. Such chunks of friendship ought not to be hid under a bushel.

> I've been so glad that you came to see us! I've told Dr. Miller that *he* can't have *you* all to himself any more, for *I'm* going to claim at least a part of you for myself, "and don't you forget it"—
>
> "BY GEORGE."

After leaving York's I took a train for Toledo. From that point I resumed the wheel to Medina—the last day making 110 miles in 9 hours.

Now, then, you have an outline of my visit. The first installment of Bicycle Notes is given in this issue, and will be continued until I have told you of all the good things I picked up on the way.

Perhaps it may be well for me to state right here that I felt greatly honored by the cordial and hearty welcome I received at the homes of the bee-keepers where I stopped. I have received so many courtesies that I do not know how it will be possible for me to ever repay them. I meet with a great many classes of people; but I do not believe there are any nicer folks in the world than bee-keepers. Their study of the works of Nature (and Nature is God) seems to ennoble them, in my humble estimation, above the average of their fellows. I am well aware that I have had to skip the homes of many bee-keepers who would have made my visit just as pleasant and profitable as those where I stopped. But limited time is my only excuse for not stopping at all places on the route; and there are quite a number of "leading lights" I had to pass by entirely.

BEE-MOTH; ITS RAVAGES; NOT A SERIOUS ENEMY IN THE UNITED STATES.

We have received several copies of the *Agricultural Gazette*, published by the Department of Agriculture of New S. Wales. Those that have come to our office have contained much of practical value to the farmer. In the April number there is an excellent article on beeswax-moths, by Sidney Olliff, Government Entomologist for New South Wales. Along with this is a beautiful lithograph plate showing the work of the moths upon the comb, their larvæ, and the moths themselves, etc. As the lithograph was the finest and the truest to nature of any thing I had ever seen I had it reproduced in half-tone, and take pleasure in presenting herewith the result together with a part of the article referred to above.

I find that authorities in this country refer to two kinds of bee-moths—the large and the small. As the scientific names are the same as those above mentioned I feel sure that our own bee-keepers will recognize their "old friend the enemy," in the plate. Of course, you will not forget to observe that the drawings are greatly enlarged. The horizontal lines just opposite give the life size, which, so far as I remember, corresponds to the size of the same species in this country.

The Italians are so thoroughly disseminated in this country that the wax-moth, so far from being an enemy, may be regarded more as a curiosity; and at the present time it bids fair to become extinct. In Europe, and especially in England, I believe black bees predominate, and hence bee-keepers across the water have more trouble with the bee-moth, and are more concerned with methods of exterminating these pests than we are. Italians are making rapid headway in Australia, and we naturally expect that they will soon cause the bee-moths to become a thing of the past, as they are practically in this country.

It is not safe, however, even here to leave combs exposed for any great length of time from the bees. If we have any left over during the season they are kept in a tight box or room, said box or room having been subjected to a temperature near the zero-point during the previous winter for a considerable length of time; for long and severe cold kills the eggs and larvæ; and if the compartment in which the combs are is kept tight thereafter, there will be no danger of wax-moths.

The bee-moths, or beeswax moths, of which there are two distinct kinds commonly found in Australia, are so well known, and have been so frequently figured and described, that it will not be necessary to give very detailed or technical descriptions of them here. A considerable number of inquiries have been received during the past two years regarding these destructive moths, chiefly from amateur bee-keepers; and it may, therefore, be useful to publish a few notes concerning the habits and seasonal appearance of these insects in Australia, more especially as I am able to add some information regarding remedial and preventive measures for the suppression of the pests, which have been found satisfactory by experienced bee-keepers. The larger of the beeswax-moths—properly known as *Galleria mellonella*, Linn., but sometimes called by the name *Galleria cereana*, Fabr.—appears to be by far the more destructive of the two insects. It is a very widely distributed species, being found throughout Europe and North America, in India, and even in the cold regions of Northern Siberia; indeed, it appears to have a range that is co-extensive with that of the bee-hive itself. In warm countries it is much more abundant, and therefore destructive, than in temperate or cold climates, a fact which is probably accounted for by the varying number of broods or generations which occur in a season under different climatic conditions. With us in New South Wales the first brood of moth appears in the early spring from caterpillars which have passed the winter in a semi-dormant condition, within the walls of their silken coverings, and only turned to pupæ or chrysalids upon the approach of warm weather. These winter (or hibernating) caterpillars feed very little, and usually confine their wanderings to the silken channels which they have made for themselves before the cool weather sets in. Upon the return of the desired warmth the caterpillars spin a complete cocoon for themselves and turn to the chrysalis stage, and in from ten days to a fortnight the perfect moth appears. The moth then lays eggs in any convenient spot, such as the sides and bottom of the frames, on the walls of the hive itself, or on the comb. In each case I have had an opportunity of observing the process, the moth chose the sides of the frames, as near to the brood-comb as possible, the young larvæ having a decided preference for this comb. The larvæ having once made their appearance, which they usually do in from eight to ten days after the laying of the eggs, their growth is exceedingly rapid, the average time before they are ready to assume the chrysalis stage being only some thirty days. The average duration of the chrysalis period is about a fortnight, so it can easily be seen with what great capabilities for rapid reproduction we have to deal. As we have said, the number of generations, or broods, which develop in a season, *i. e.*, between early spring and late autumn, varies with locality and climate, but it may be worth while to record that, in my opinion, we have sufficient evidence to prove the existence of four broods in the Sydney district under ordinary circumstances. I have myself bred three generations, or broods, from a comb received in early spring from the Richmond River; and I am convinced that a fourth might have been bred from the same stock but for an unfortunate accident to the eggs obtained from my third brood. Upon first hatching, the larvæ is pale yellow in color, with a slightly darkened head; and, when full grown, it is of a dull grayish flesh color, with a dark reddish-brown head. Its average length is about an inch, and, like the majority of the caterpillars of moths, it has sixteen legs. The chrysalis of the larger beeswax-moth is of the ordinary type, and it is inclosed in a very compact cocoon of tough white silk, usually spun up in one of the silken channels or galleries made by the larva which we have previously referred to. The perfect insect, or moth, has reddish brown-gray forewings, which are distinctly lighter in color toward the outer or hinder margins. The sexes may readily be distinguished by the outline of the wings, as will readily be seen by a glance at the plate accompanying this article.

The second species of beeswax-moth is known as *Achrœa grisella*, Fabr., the lesser beeswax-moth, or honey-moth, etc. Although not nearly so destructive as the larger kind, it does considerable damage in old and neglected hives. The moth is much smaller than *Galleria mellonella*, with which, by the way, I have found it associated in the same hive on more than one occasion. It is of a dead gray color, with a yellow head. This species is not nearly so particular in choosing its food as the former kind (*G. mellonella*), and may frequently be found feeding on the *debris* which commonly collects on the bottom of a neglected hive.

It is a well-known fact, that the beeswax-moths do not attack the Italian (Ligurian) bee to any serious extent; indeed, they are rarely attacked at all. It is the ordinary black bee or hive-bee that suffers so greatly.

In conclusion I would express my thanks, among other kind correspondents, to Dr. Dagnell Clark, the Rev. John Ayling, and Messrs. Abram & Riddel, who have been kind enough to forward to the Department specimens or information.

So far as I am aware, very few recognizable figures of the bee-moths have been published, so that the plate attached, from the pencil of Mr. E. M. Grosse, will doubtless prove very acceptable. With the exception of an excellent wood-cut in Dr. Taschenberg's "Die Insecten" (Brehm's Thierleben, Vol. IX., p. 432) of the larger species, I have not been able to find a figure showing the stages or habits of these moths.

EXPLANATION OF PLATE.

BEESWAX-MOTHS.

Fig. 1.—Larva or caterpillar of Larger Beeswax-moth (*Galleria mellonella*, Linn.), side view (much enlarged).

Fig. 2.—The same viewed from above (much enlarged).

Fig. 3.—Cocoon of same, extracted from bee-comb (enlarged).

Fig. 4.—Larger Beeswax-moth (*Galleria mellonella*, Linn.), male (much enlarged).

Fig. 5.—Forewing of same, female.

Fig. 6.—Larva or caterpillar of Lesser Beeswax moth (*Achrœa grisella*, Fabr.), side view (much enlarged).

Fig. 7.—Pupa or Chrysalis of same (much enlarged).

Fig. 8.—Lesser Beeswax-moth (*Achrœa grisella*, Fabr.), (much enlarged).

In the background, above, a comb from a frame-hive is represented, showing brood-comb tunneled by the larvæ of the Larger Beeswax-moth (*Galleria mellonella*, Linn.).

The natural sizes of the insects are indicated by hair-line.

OURSELVES AND OUR NEIGHBORS

BY A. I. ROOT.

I will have mercy, and not sacrifice.—MATT. 9:13.

In a recent issue (p. 557) I alluded to the fact that, a good deal of the time, our laws are not enforced—that transgressors are beginning to presume that they can escape penalty, especially if they have money to back them; and that, after a man is convicted and put into prison, if he has money his friends can get him pardoned. Well, there are a good many people who are just now demanding that our laws *be* enforced. They say that, when a man is found guilty, he should be punished to the full letter and extent of the law; and that the great reason why crime is on the increase is because of a foolish weakness on the part of so many of our people, leading them to believe that the law is too severe or too hard; and that, after a criminal has been punished just a little while, he should be pardoned out. Of course, there are abuses along this line, and very likely there is a good deal of foolishness or foolish sentiment in taking the part of criminals, and screening them from justice; but we should bear this in mind—circumstances alter cases. I mentioned the fact that it was said that foolish women sent bouquets of flowers to the assassin of the mayor of Chicago. Now, there are those who go so far in their condemnation of this thing as to say that the whole matter of visiting prisoners in jail should be stopped. A part of their punishment is to shut them up without companionship. The way of the transgressor should be *made* hard, etc. This class of people are very likely to say that, when a man commits a crime, and gets punished, it is good enough for him; and the sooner the whole world learns that punishment *inevitably* follows crime, the better for all concerned. Now, that is all very right and proper, providing we do not push it too far. As I have said, *circumstances* alter cases. A good and wise judge and jury consider the circumstances carefully in rendering their decision. For instance, "Is this the prisoner's first offense, or is he an old and hardened criminal?" The crime committed may be the same in both cases, but we should *carefully* consider the circumstances.

Years ago, on these pages I told you of a young man I found in our county jail. He had been in the penitentiary once, and was on his way there again for the same offense. Through God's mercy, however, he became converted. I had visited him in jail for several months, and had become intimately acquainted with him. Through my advice he not only pleaded guilty, but he confessed his crime so honestly, and in such a manly way, that even the judge himself was moved. It was years ago, so I can not remember exactly what he said; but it was in substance something like this:

"Gentlemen of the jury, we send boys to the penitentiary because we think it will be the best thing for them—because it will be the *only* thing that will teach them to do differently. I am satisfied that *this* young man will lead a different life, even if he is not sent to prison at all."

The judge overhauled the law, and in a little while decided that the prisoner need not be sent to prison at all. In a few days his prison door swung open wide. True to his promise he held fast to his new-found Savior. He commenced at once going to Sunday-school and studying his Bible. In a few weeks he was taken into the church, and in just a few months he was superintendent of a Sunday-school, standing up before his audience, reading God's holy word, and leading the school in prayer. Had he been sent to prison, I firmly believe he would have held fast to his religion; but was it not a wise decision of that judge that this young man did not *need* to be sent to prison? His frank and manly confession of his crime, and his willingness to receive whatever punishment the law decided to inflict, had the true ring. The officers of the law and the jury showed good sense in letting *mercy* influence them in their decision.

Last week there was an account in the dailies something as follows: A thrifty farmer had raised a nice patch of watermelons. As usual, or as very often happens, perhaps I should say, he was much annoyed by the depredations of the neighborhood boys. He expostulated and threatened; and finally, becoming desperate, he put poison into some of the finest ones. The next morning he found three young boys dead in his melon-patch. Now, some of the friends who are vehement in declaring that the way of the transgressor should be made hard may say that it was all right; if the boys had let the melons alone they would not have got into trouble. But, wait a bit. One of the three boys was the farmer's *own son*. Of course, he never dreamed that one of his own children was a party to the thieving. We do not know about it, but it would seem likely that the father had been so choice of his melons that he did not give his own children as many as they wanted. A good many of the readers of GLEANINGS are melon-growers, as I happen to know. They have enjoyed protecting the plants from frost, bugs, and weeds; they have worked hard to make a success. When the luscious fruit begins to ripen and reward them for their diligence, they enjoy seeing it grow. Friend Terry says in regard to that piece of ground where he had 50 bushels of wheat to the acre, he used to look at the wheat every night to see how much it had improved during the day; and when he looked out in the morning, the first thing he did was to notice how much improvement it had made during the night. You all know about these things. Now, let us imagine that melon-grower as he stood in his melon-patch on that terrible morning. Three boys dead, and one of them his own! Do you think he cared to look at the melons then? Perhaps there was not a weed in the whole field. May be the foliage presented as handsome an appearance, with the drops of dew resting on it, as it did other mornings; but what attraction was there to him *then* in all these things? What were his thoughts? We can not begin to comprehend how he groaned in anguish of spirit, "Oh! I would give all the melons in the world—I would give millions of money if it were mine—I would give the whole world—nay, I would give my *own* life itself, if I could but be back where I was before I put that poison into the melons! Oh! why was I such an idiot? Why did I not recognize that the finest melons that the world ever produced are but froth and foam—but bubbles—empty chaff—compared with the life of even one of these boys?" We do not know whether he said, "May God have mercy on such a wretch as I," or not. But, dear friends, I have not yet told *all* of that sad story. While he was standing there in that melon-patch, struck dumb by the consequences of his foolish act, the father of one of the boys had found out what was done. The evil spirit was contagious. It was in the heart of the neighbor as he looked upon his murdered boy. Without a word he leveled his gun, and in a moment more the melon-grower himself was a corpse beside his victims. What a change in that neighborhood in one short day! Of course, this was not law. It was taking the law into their own hands. Perhaps this poor man did not know that the laws of our land forbid using poison. You can not even poison your neighbor's dog or chickens, no matter how much they annoy you. Our laws are very strict in this matter. If you have been annoyed and damaged, you can recover damages if you go about it in the proper way; but you have no right to undertake to administer justice yourself. The illustration above shows you where it leads; and who can say where the end will be?

A great many people become impatient at the slow process of the law. When President Carnot, of France, was stabbed in broad daylight, a good many people wondered that the authorities waited to go through the formality of a trial. Of course, nobody questioned the guilt of the assassin. He himself did not deny it, and yet all the formalities and delays of the law had to be observed. It was wiser and better, because of the example it set before the world. The element of *fairness* commended itself to everybody.

I can remember, when I was a boy, of hearing a man make objection to the Christian religion because it permits a man to be the veriest rascal all his days, provided he repents before he dies. This man said, that such a sinner was to be received right into the fellowship of the saints just the same as if he had been a good man all his life. The speaker did not recommend mercy. He probably recommended punishing a man all the same, no matter whether he was sorry for his wicked acts or not. Perhaps I should say first, that the Bible does not teach this at all, if I am correct. Sin or sinful lives will leave their scars; and the sinner who is truly converted will feel remorse all the days of his life for the sins he committed while he was an ungodly man. It seems to me that that judge was very much in the right when he said we wanted to do that which was *best* for our criminals. If the penitentiary will do them the most good, then by all means let them go there and stay there. Whenever it becomes evident, however, that they will be good, or turn to better lives, without the discipline of the penitentiary, then let us use mercy.* The experienced judge or officer of the law can tell pretty quickly from the attitude and behavior of a criminal whether his penitence is genuine sorrow or not for his sinful course. Since I have grown older I am getting to see these things in a different light from what I did; and it pains me to the heart to hear so much fault found with the way in which the law is administered. The *friends* of the accused, of course, complain of the severity of the law and of its officers. On the other hand, those who know nothing of the circumstances, or perhaps those who suffered from the sinful acts of the guilty one, demand punishment *without mercy*, and are not backward about accusing the officers of being bribed to let the guilty one get off easy.

Most of you who read the papers have seen more or less of the serious charges brought against the Sugar Trust; and several ministers have taken the matter up in their sermons, giving figures and scathing denunciations against these "wholesale robbers" as they term them. In a recent issue of the *American Grocer*, one divine in the city of New York has been called to order. The periodical above copied the figures the preacher gave in his sermon, and gave, as it seems to me, ample evidence to show that these figures were greatly exaggerated. The speaker probably obtained them from the dailies. The *American Grocer*, in closing, said something like this: Nowadays it is customary for each industry or class of people to appoint a committee to have their industry properly presented before Congress, in order that it may have the recognition it deserves. Even the bee-keepers have done as much as this. The latter expression is my own, not from the *Grocer*. Well, the *Grocer* goes on to say that the sugar-refiners have done this, like other class organizations. Having large capital, they have, perhaps, been able to do things on a larger scale than most other industries. Then they add something which I sincerely hope is true. They say they do not believe that any member of Congress has been *bribed*, to the extent of a dollar, to favor them by any underhanded or unlawful means. Perhaps the truth lies somewhere between the exaggerated accounts of our political newspapers and the statement made by the *Grocer;* but in leaning to the side of the latter, I am reminded of the statements made only a short time ago, in these very same political dailies, about manufactured comb honey.

There are many dangers threatening us just now as a people; and I can not help thinking that one of them is the disposition to believe so readily that all men are rascals, and then recommend that they be punished without *mercy* to the full extent of the law; and when the law is slow they take the matter into their own hands, and shoot down the thieves and rascals, or, if you choose, the *apparent* thieves and rascals. A movement is already on foot to have something done to prevent lynching and mob law—to prevent hanging a man before we are really sure he is the guilty party. O dear friends, does it not behoove us to be careful? It is *impossible* to frame laws that will fit all cases indiscriminately. In view of this, shall we not get intimately acquainted with the offender, and get at the full facts of the case? and then when we condemn him to prison or to death, let us do it with a gentle and loving hand if such a thing be possible.

NOTES OF TRAVEL
BY A. I. ROOT.

ON THE WHEEL.

One of the boys said the other day, that one could start out now and go anywhere without any fear of being hindered by rain. You are likely to be hindered in another way—by dust; but we can manage the dust pretty well. By the way, I wish to call attention to the social element that the wheel develops. The boy or girl who rides a wheel sees more people, gets around among folks more, and knows what is going on a great deal better than one could very well without a wheel. The wheelman soon gets to be known and recognized for miles around in every direction. He sees how other folks do things; his ideas are broadened; and on general principles he is a more valuable member of society. It is true, that, where he is disposed to be vicious, it gives him extra opportunities to get among the vicious classes. But we have to meet this at every turn. Even education itself helps a bad man to be a worse one; but we can not, even if that be true, discourage the education of the people.

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* Along in this line I may mention the recent plan of letting criminals out on parole, or good behavior—especially intemperate ones. So long as they abstain from drink, they are free men; but as soon as they get on another spree they are sent back to prison to serve out the full time of their sentence.

This is the season of fevers; and I believe severe drouths are productive of fevers. If I do not ride ten miles or more almost every day, I have twinges of my old malarial chills unless I stick to my heavy clothing and fur cap. Last evening I was feeling especially miserable—no inclination to move around or do much besides lying on the lounge and sleeping. I knew, however, from former experience, where I could find life, enthusiasm, and enjoyment; so I pushed off through the deep dust. It covered the roads and filled the air; but I plowed through it. The first two or three miles the chills did not let up; but after I began to sweat a little I began to feel myself "boss," even of malaria. I went out to see a spring a neighbor was opening up. I did not get started until nearly night; and by mistake I went almost a mile back into the field. By the way, you can run a wheel through pasture-lots *now* with the greatest ease. The ground was hard; the grass was gnawed down and dried up, so there was scarcely an impediment. If you can get on to a sheep-path you will have one of the finest tracks. I went off through the fields, up hill and down, back into the ravines, and I verily believe I never enjoyed a ride out in the country more in my life. Just as it was getting dark I got track of the spring. It has been furnishing plenty of water for the sheep and other stock; but the owner has to pull it up four or five feet with a pail. He thought that, if he could run a pipe from the surface of the water to ground that was four or five feet lower down, he would have a running spring. I told him I feared the water would all run away, and he would not have any; but as it has been rising every day just as fast as he draws it out with pails, he felt sure he could make a success of it. I will report later in regard to it.

It was after dark when I finished my investigations. The dust was so deep in the path of the wagon-wheels that it was almost as bad as sand to plow through, and it was getting too dark to keep the horses' path. I soon found, however, that, by watching for the droppings of the horses, as they lay in the light yellow dust, I could, even after dark, keep the center of the beaten path pretty well; and I finished my ten-mile trip through the dust and darkness with as much health, enthusiasm, and enjoyment, as any mortal could reasonably ask for.

Yesterday, in going through a piece of wheat-stubble, where some blackberry-bushes had been cut off with the wheat, my tire was punctured by a sharp dried-up berry-stubble. While it was being repaired I was obliged to do considerable walking over the grounds. First, I had to go down to the creek bottom, then up to the windmill, and then over to the swamp garden, all on foot; and by the time the wheel was mended I had one of my old-fashioned backaches as a consequence of standing on my feet too much. Well, the ten-mile ride I have just told you about was just after this. I have got so used up in walking about and looking after things, climbing stairs, etc., that I presume I shall never get over it. Going about and attending to business on foot is far more tiresome than a straight tramp along a good road. Walking rapidly seems to employ a different set of muscles, and is more like wheel-riding; but it is not to be compared with it either in speed or enjoyment. Well, when you are tired out with business, standing around, the very minute you get into the seat on your wheel you feel rested; and the muscles that furnish the propelling power seem almost as if they had remained unused since childhood; therefore they are in full vigor. Day before yesterday, Aug. 30, Ernest rode from Toledo to Medina, a distance of 110 miles, in 9 hours. Now, such feats as the above, instead of using him up, seem, on the contrary, to toughen and harden and invigorate him for any sort of work or business. In a recent trial of what could be done on wheels by means of relays, a message was carried from Washington, D. C., to Denver, Col., in a period of time but little more than twice that required by our railway trains. The trains have an expensive track to run on; but the wheelman has nothing but ordinary roads, and at a season of the year when a great part of the roads are in a fearful condition from sand and dust.

Now, then, with a track or narrow pathway that need not cost more than a tenth part as much as a railway-track does, what do you suppose could be done on a wheel? It is not necessary that the wheel-track be on a dead level. In fact, I believe I rather prefer a path that is a little up and down hill. The momentum one gains or accumulates in going down hill carries him nearly to the top of the next; and with a good hard path under the wheel, without any short bumps or undulations, and where the hills are not too high or steep, one goes—I was going to say, with the speed of the wind; but even I myself can leave any ordinary wind away behind; and I believe the whole wide world has never yet dared to claim that any method of travel gives any thing like the enjoyment that riding a wheel does.

HIGH PRESSURE GARDENING

HIGH PRESSURE GARDENING DURING DRY WEATHER; WHAT SHALL WE DO?

The natural answer to this question would be, Irrigate. That is, construct reservoirs, save up the water in winter and spring, and use it during the drouth. Well, this may be all right, and to a certain extent water is the very thing to have during a drouth. But it costs lots of money, and it is expensive business to apply it after you have got it; and I feel certain there is something else to be done first. A few days ago a young man whom I have known for years brought in some very fine peaches. He said he grew them himself on his clay farm right here in Medina Co., and I was a good deal surprised to hear it. That very evening I took my wheel and paid him a visit. Right back of his house were three acres of fruit-orchard, mostly peaches; and if some of the trees and fruit were not entirely equal to any thing I saw on Catawba Island, they came pretty near it. How did he manage to raise beautiful peaches, without flaw or blemish, on our Medina clay soil right during the most severe drouth we have ever experienced?

Now, there is a wonderful point right here, and it is really a glimpse of sunshine to farmers and fruit-growers. It is the same thing I have met a good many times before. Briefly, this young man has a brother-in-law who is a peach-grower near Catawba Island. It is his business, and he knows just how to succeed. Well, he visited our Medina friend some years ago, and in looking over his farm he told him he thought he could raise nice peaches even here, if he would go about it as they do up on the lake-shore; and our friend "Milo" posted himself up on the business of raising peaches, and went about it. He planted his trees 18 feet apart, over three acres of ground. Then he laid a line of tiles between every other row. The result is, that every peach tree in the orchard is within 9 feet of a line of tiling. Then he put out his trees, worked the ground up fine and soft, planted corn, and then took care of the corn nicely. He managed exactly as Terry practices and teaches. With fine-tooth cultivators he broke the crust after every rain, and kept out all the weeds. Of course, the trees took hold and grew. I suggested that he must have manured the ground heavily; but he said he did not. He put on hardly enough to get a good crop of corn. It was tillage and not manure that did the business. No hard ground was ever to be found in that peach-orchard, neither around the trees nor among the corn. The corn did not amount to very much as the trees became large and thrifty, it is true; but it shaded the ground, and furnished fodder enough to pay the cost of cultivation. His ground is almost level; in fact, it was hard work to get fall enough for laying the tiles as they ought to be; and one spring he noticed water standing along one row of trees. A line of tile near them had got stopped up. He opened it and let the water off immediately; but that row of trees shows the injury they received, even though the stoppage of the tiles was two years ago or more. The ground had become water-soaked, the roots of the trees became poisoned, and he has not been able to get them over it. Peach-trees die because of too much wetness—seldom from drouth. He has tried watering some of his trees to see if it would pay. Keeping the ground fine, soft, and mellow seems to answer just as well or better. Is it not a simple thing, first having the ground thoroughly underdrained, and then keeping the surface soft, fine, and mellow, so that it never becomes hard and baked on the surface? The leaves of the trees looked green and thrifty. Some of the young growth had grown 18 inches or 2 feet. The wood was smooth and clean, and the trees were nicely shaped. He has been testing almost all the standard varieties, and he is succeeding with every one of them. In fact, I never tasted more luscious peaches in my life anywhere. The sight of that fruit-orchard was just wonderful to me; and then it is the old, old story. In California they do this very thing. They keep running the cultivators until the ground is just beautiful, it is so soft and fine.

Just at the beginning of the drouth I turned over some old strawberry-vines. For some reason or other I did not put on any manure. The ground was dry, so we had no trouble about working it over fine and soft down to quite a depth. I planted kidney wax beans and Freeman potatoes. The latter were not planted until the 10th of July. To-day, Aug. 31, both beans and potatoes are a mass of luxuriance; and although the beans have come up and grown almost without a drop of rain, they are ahead of any thing I have been able to produce by the use of irrigation. The potato-vines do not show a particle of blight, and not a bug has ever been seen on the patch.

There is something a little funny about this plan of making garden in dry dust, without any rain. Some time during the fore part of August we prepared another strip of ground where onions had been gathered, and sowed turnips, radishes, spinach, and peas. Some of these seeds came up, but a good many more have not germinated yet. If the ground had been firmed right over the seed very thoroughly, I think all would have germinated; but I was away when it was done, and I forgot to tell the boys to roll the ground hard after sowing the seed. By the way, what an easy matter it is to keep ground free from weeds during a time of drouth! The wax beans and potatoes I have spoken of are cultivated with a fine-tooth cultivator about once a week. Then the boys go over the whole patch very quickly with their hoes. A little purslane will start, and some such hot-weather weeds; but just a touch of the hoe, and the weeds are destroyed, and the ground is nicely mellowed. Several visitors have called recently—among them Mr. S. T. Pettit, of Belmont, Ontario; Mr. Christian Weckesser, of Niagara Falls, N. Y., and Mr. W. M. Kellogg, of Pleasant Hill, Mo. Friend Kellogg especially wanted to see what success I had had with irrigation. Well, I could not show him much success; but I took him down to the creek bottom, and showed him the beans, potatoes, and other things, with their bright, green, thrifty luxuriance. Then I took my foot and kicked down into the soil, and showed him that it was almost like road dust, only it was damp as I got down an inch or two. By the way, this creek bottom, the most of it, has a gravelly subsoil, and in this gravel there is almost always more or less water. The ground was overflowed in the spring, and the moisture has not all got out of the subsoil even yet. Perhaps this has something to do with the success of my gardening during times of drouth; but not altogether, for we have strawberries up by the windmill, thrifty and green, on the highest ground anywhere in the neighborhood. They are on clover sod, and the ground is soft and fine, like that on the creek bottom. The strawberries, however, are not making well-rooted runners, without rain. But they are growing rapidly, putting out lots of runners, which we are covering at each bud; and with the advent of rain we shall have an abundance of plants in a very short time.

It is not easy getting this very fine dust between and all around your plants, with crops in, in the spring; but after you have removed early crops you can plow the ground and work it fine and deep way down; then set out your plants, or plant your seeds, and then it is an easy matter to *keep* the ground soft by simply working the crust or stirring the surface, if you do not have rain. With raspberries, blackberries, and even peach-trees, it is not quite so easy. However, if you have your ground well underdrained, then finely worked up before the trees or bushes are planted, by being very thorough you can keep it soft and fine the year round—that is, whenever it is not too wet; and if thoroughly underdrained it should almost never be too wet to work. Now, then, before investing money in windmills, engines, and reservoirs, I would test thoroughly this matter of *thorough tillage.*

GARDENING DURING DROUTH.

The kidney wax beans referred to elsewhere are now giving us the finest crop of wax beans we ever grew. There is not a bean with a speck of rust on it in a whole bushel. Very likely this is because there has been no rain, and wax beans on soil like that which I have described, well cultivated, I should say are better off without rain. I do not think I ever saw a better crop under any circumstances. The two large bush limas—the Kumerle and Burpee—are also doing splendidly; but the Burpee is giving us the largest crop, because the pods are larger; there are more beans in a pod, and the beans themselves are larger. One of the boys said, a few days ago, that he could gather a peck in ten minutes. They were planted in some very poor ground—in fact, on a piece that I rented; therefore I did not go to the expense of underdraining or very heavy manuring. There is, perhaps, an eighth of an acre; and while the yield may not be quite equal to the same amount of ground with pole beans, it is going to come pretty near it. They were planted with the rows only 30 inches apart, plants about a foot apart in the row. They cover the ground now; and although they were not planted until well along in June, the crop is going to mature nicely before frost. In fact, a good many of the pods are dry now, Sept. 8. The Burpee bush lima is a decided success. There is not a bit of trouble, so far as I can see, in raising them by the acre, and then we can successfully compete with the California limas. The high price of the seed has been the great obstacle heretofore. The Kumerle is pretty nearly up to the Burpee in yield, and I should pronounce it quite a little ahead in quality. In fact, it is to me the most delicious of any thing ever known or ever grown, in the bean family. I do not believe we shall ever again fuss with bean-poles.

THE GAULT RASPBERRY UP TO DATE, SEPT. 11.

These plants, you may remember, were set out in our rich creek-bottom ground some time in April. When the roots were received from friend Gault there was not any thing visible above ground, unless it was an inch or two of old wood. Well, at present writing many of the plants need a space of about ten feet across to accommodate the new growth. If pulled out in a straight line, I think there are single branches nearly if not quite as long as a ten-foot pole. Our hundred plants were put in two rows. One row had the ends of the branches nipped off when they were about two feet along. The other row was allowed to grow. Both rows are at present pretty well covered with fruit, all the way from the blossom up to the ripe berry. The principal part of the crop will ripen, however, during this month, perhaps just before frost. My impression is, I shall not get as much fruit on our very rich grounds as friend Gault does on his clay soil with but little manure. We shall, however, get a great number of young plants. The man who put them down reported that he got 24 tips on one single plant. The friends who have one or more of these plants will remember that just now is the time to bury the tips.

PLANTING ONION-SETS, INSTEAD OF SETTING THEM.

People of old, and many of this day, call small onions "onion-sets." Why so? I suppose it is because they have to kneel down, or go stooping along at a very slow rate to plant them, setting them in the ground one at a time, top up and root down. I have done this until I thought my back would break, and my helpers complained likewise. So I marked off a few furrows and dropped them along about the same distance I would have set them, and covered them slightly; and when up I treated them just the same as those set in; and when harvest time came, to my astonishment they made just as good a growth, and were as plump and straight, as those set in the old way; and the time required to plant this way is only about a third the old way. This plan, with me, is original. Have you ever heard of it?

Jessup, Md., Aug. 31. Geo. W. Geaslen.

[Yes, sir, I have heard of it. If you will look in our seed catalog you will find that we have, for many years back, directed that winter (or Egyptian) onion-sets should be "sprinkled in a drill, about as we would peas, say from 3 to 5 inches apart;" and others have planted their onion-sets in the same way. There have been, however, some differences of opinion as to whether it would answer just as well; and therefore I am very glad indeed of your testimonial. Let me suggest, that, after covering the sets quite shallow, as you say, when they get up through the ground, say two inches high, you throw a little more dirt over them. This will not hurt the little onions, but it will kill all of the small weeds. I am sure this will answer every purpose for onion-sets that are to be put in during this month of September. Make the drills a little deeper, with the idea of doing the last covering after they are pretty well up. If you want to be sure to have a perfect stand, you can fill in the missing ones just before you do this last covering.]

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to Gleanings. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to Gleanings, though we greatly prefer that he be one because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

TO CURE THE TOBACCO HABIT.

[A subscriber thinks the following, which he clipped from the *Golden Rule*, ought to be given in Gleanings, and we think so too; so, here it is:]

From time to time I have noticed inquiries in the *Golden Rule* as to how to overcome the tobacco habit. The remedy that I will prescribe is infallible, and costs nothing but self-surrender.

I was an immoderate user of tobacco for more than thirty years, and had made many efforts to quit by means of so-called antidotes, will power, etc., but without avail until finally I realized that Paul had struck the key-note to all success when he said, "I can do all things through Christ which strengtheneth me." That little word "all," how comprehensive, although small!

The remedy is very simple; viz., prayer for help. Going to my room, I told the Lord that I was a captive to a sinful and filthy habit; that I had no power of myself to break the chain; that I was very anxious to be free from a habit that was defiling my body, which should be a temple of the Holy Ghost. I asked him to take away the terrible appetite; but, if he saw fit to test me by not taking away the craving, then to give me the strength and grace to resist, that I might finally overcome.

Thanks be to his name for ever, the appetite was instantly and completely taken away, and has never returned. Twenty-two months have passed since he so marvelously manifested his power to save from evil habits. How true it is that Jesus saves from all sin if we will let him!

If any Endeavorer is enchained by this filthy habit, I beseech him to try the only remedy that will never fail. We should trust Jesus to make us every whit clean. If we have clean hearts and right spirits within us, these useless and filthy habits will never obtain lodgment in us.

Please send to me, for Mr. Frank E. Frey, a Clark smoker, as he has promised me he will quit the use of tobacco. If he ever again uses the filthy stuff I will pay for the smoker.

Waverly, Pa. A. D. Fuller.

D. F. White, a bee-keeper, has used tobacco for over 15 years. He quit chewing about two years ago, and smoking last fall. He says he is entitled to a smoker. If he ever uses the weed again he will pay you for the smoker. Please send as soon as possible.

Mechanicstown, O. W. S. Stevens.

Please send a smoker to my address for M. E. Washburn. He said he would discontinue the use of tobacco. If he ever uses it again I will pay for the smoker. H. A. HARDER.
Annin Creek, Pa., April 28.

Mr. Wesley Hubbard, of English, Ind., has quit chewing tobacco; and if you send him a bee-smoker I will pay for it if he goes to chewing again. R. O. JONES.
Temple, Ind., May 9.

S. L. Payne has quit the use of tobacco, on account of your offer. If you see fit you can send him a smoker. He is honorable, and will pay for the smoker if he uses tobacco any more. He takes GLEANINGS with me.
Westfall, Or. JAMES SCOTT.

After having read your Tobacco Column, I concluded to quit using tobacco. If you think me entitled to a smoker, please send me one. I promise to pay for the same if I should ever use the weed again. J. A. KREHBIEL.
Donnellson, Ia., Nov. 5.

Please forward to my address one smoker for Mr. L. M. Potter, who has quit the use of tobacco, partly through the influence of GLEANINGS. If he should relapse I will see that you are paid for the smoker. FLOY POTTER.
Silver Creek, Mich.

Mr. John Yates, of Hartford, Mo., has been persuaded to quit the use of tobacco (through GLEANINGS); and if you think him entitled to a smoker, please forward it to his address, and I will go his security. C. A. DICKMANN.
Gehm, Mo., May 8.

Mr. J. C. Layman, of Trinity, Va., seeing your offer of a smoker to any one who quits using tobacco, decided to quit; and, thinking the smoker would be a good reminder of his resolution, I should be glad if you would send him one. I am sure he will never use tobacco again. C. E. LAYMAN.
Troutville, Va., Jan. 26.

I have noticed in GLEANINGS that you will give a smoker to any one who stops using tobacco. My neighbor, George Campbell, has quit it, and says if you wish to send him one he will pay for it should he ever use tobacco again; and mosquitoes will not tempt him either. I will see that it is paid if he uses it again. J. L. ZELLER.
Barron, Wis.

My father, after seeing your offer in your journal, which he always reads, has quit chewing tobacco, and wishes you to send him one of your smokers, according to your agreement. He has quit for about three or four weeks, and says he feels much better, and has improved in health since quitting. I am sure he will never use tobacco again in any shape. If he does I pledge myself to pay you for the smoker.
Branchville, Ind. T. H. FRAKES.

I have used tobacco for 20 years; and since I have been a subscriber to GLEANINGS I have been induced to discontinue the nasty habit; hence I now claim a smoker. I also told one of my neighbors, Mr. John W. Seneff, of your liberal offer, and he also promised to quit the use of tobacco entirely, if you will give him a smoker; and if either one or both of us ever use the weed again I will see that the smokers are promptly paid for. G. J. STURM.
Mt. Erie, Ill., May 16.

RESUMES THE USE OF TOBACCO, BUT PAYS FOR THE SMOKER.

About a year ago I got a smoker from you to quit using tobacco. I am sorry to say that I have been using it again in a mild form on account of my teeth, so I think you are entitled to pay for the smoker, as I promised. Inclosed please find money order for the same.
Mayfield, Ky., Nov. 27. R. H. HUMPHRIES.

CONVENTION NOTICES.

The bee-keepers of Utah will hold their semi-annual convention at Salt Lake City, Oct. 4, 1894. J. C. SWANER, Sec.

CHANGE OF DATE — IMPORTANT NOTICE.

In order to let all bee-keepers who can, take advantage of the Harvest Excursion rates which will be given Oct. 9th, we have concluded to change the date of the meeting to Oct. 10th, 11th, 12th. The rate will be half fare plus $2.00. These rates apply east of the Missouri River only. Ask your railroad agent about them. Special rates of 1⅓ fare will no doubt be secured in the territory covered by the Western Passenger Association. These will be announced later, if secured.
St. Joseph, Mo., Aug. 25. E. T. ABBOTT, Pres.
Agricultural papers will please note the change above.

REDUCED RAILWAY FARES TO ATTEND THE NORTH AMERICAN BEE KEEPERS' ASSOCIATION AT ST. JOSEPH, MO., OCT. 10, 11, 12, 1894.

The Western Passenger Association, under the conditions named below, will grant reduced railway fare to those who travel over their roads and attend the meeting of the North American Bee-keepers' Association at St. Joseph, Mo., October 10–12.

Conditions.—Full fare will be charged going. Return tickets will be issued at *one-third the regular fare*, provided the purchaser presents a certificate from the agent of whom he obtained his ticket, and provided, also, at least 100 such certificates shall be presented. There can be little doubt on this point, especially as special round-trip excursion tickets, even such as are issued to parties of ten, twenty-five, or more, traveling in a body, will count toward the 100, provided each purchaser is careful to secure a certificate of purchase from the ticket agent who sells him the ticket, and to present this certificate at the convention, to be countersigned by the Secretary of the Association. Therefore *do not fail to secure a certificate when you purchase your ticket*, whether single or round-trip, and no matter whether you intend to take advantage of the reduced fare or not. It may aid others in obtaining the reduction.

Time of Tickets.—Valid October 6th to October 15th; that is, they may be purchased three days (not counting Sunday) before the first day of the meeting, and the return ticket may be obtained any time up to the night of October 15th.

Railroads.—The following are the roads included in this reduction: Burlington, Cedar Rapids & Nor. Railway; Chicago & Alton; Chicago & Northwestern; Chicago, Burlington & Northern; Chicago, Burlington & Quincy; Chicago & Great Western; Chicago, Milwaukee & St. Paul; Chicago, Rock Island & Pacific; Chicago, St. Paul, Minn., & Omaha; Hannibal & St. Joseph; Kansas City, St. Joseph & Council Bluffs; St. Louis, Keokuk & Northwestern; Illinois Central; Iowa Central; Minneapolis & St. Louis; Missouri Pacific; Rock Island & Peoria; Sioux City & Pacific; Wabash; Wis. Central lines.

When necessary to pass over more than one line, and in case a through ticket with a certificate can not be obtained, it will be necessary to obtain a certificate from each agent from whom a ticket is purchased, in order to entitle the holder to the reduction on return ticket.

Those who do not live within the territory covered by these lines should, wherever practicable, purchase a local or a round-trip ticket to the nearest line named above, and secure there a ticket to St. Joseph, with certificate of purchase.

Further notice will be given in case other railway lines grant reduced rates.

Harvest Excursion.—Some may be able to take advantage of the "Harvest Excursion" rates (one-half fare plus $2.00) given October 9th, full particulars of which can be obtained of local agents.

Change of Date.—Note the change, as announced by President Abbott, in the date of the meeting, from the middle of the month to October 10th, 11th, and 12th. FRANK BENTON,
Sec'y N. A. B. K. A., U. S. Dept. Agr.,
Washington, D. C.

SPECIAL NOTICES FROM BUSINESS MANAGER

REVISED PRICES ON HIVES.

We promised in August issue to give a revised list of prices on hives in the next issue, but have been prevented by various causes. The complete revised table of prices will appear in October 1st number.

HONEY MARKET.

We are receiving some few small orders for extracted honey, and have sold several large lots, but we receive very few orders for comb honey, though we have had an abundance offered us. Prices in the market generally seem very low considering the short crop almost everywhere. Prices must get no worse, and we think must improve. Our prices remain unchanged.

REDUCTION IN THE PRICE OF ONION-SETS.

Just after we went to press with our last issue, a fall catalog came from Johnson & Stokes, of Philadelphia, giving very low prices on onion-sets for orders received during the month of September. Until further notice we will match these very low prices as given below:

Yellow Danvers, quart, 15c; peck, $1.00; bushel, $3.00. Prizetaker, quart, 25c; peck, $1.50; bushel, $5.00. American Extra Early Pearl, quart, 30c; peck, $1.75; bushel, $6.00. New White Multiplier, quart, 15c; peck, $1.00; bushel, $3.50. Yellow English Multipliers or Potato onions, quart, 10c; peck, 50c; bushel, $1.75. On Egyptian Winter onion our prices are already away below those of any other seedsman we know of. In fact, Johnson & Stokes ask $3.00 a bushel for the same where we charge only $1.00.

All of above onion-sets half-price where they run larger than one inch in diameter; 10c per quart extra when sent by mail.

ABUNDANCE OF RAIN; STRAWBERRY-PLANTS.

If anybody had told me, a week ago, that I should be hoping, on the 10th of September, that it would stop raining, I would scarcely have believed it. But so it was. We have had heavy rains, first in succession and then continuously, until the ground seems saturated, and the underdrains are pouring forth as in spring. Yes, the water ran down the streets, and finally flooded one of our basements; and it seems likely we shall have no drouth to trouble us during 1894. All orders for strawberry-plants have been filled, and every thing in that line is booming. Many of the friends fear it is rather late to get the plants well rooted. In our locality we set out plants through September and October, and seldom have them thrown out by frost. Yes, we have done considerable successful planting in November. I think, however, it will be well for each one to test his location and soil, and perhaps his own skill, by some experiments on a small scale before venturing to plant largely this season.

GLEANINGS FULL OF GOOD CHEER; HOFFMAN FRAMES PERFECT.

GLEANINGS comes to me as a welcome friend, always full of good cheer. Long live Dr. Miller and the Rambler. Don't be afraid of too many footnotes. They add a charm to it all. Your plan of tiering-up to get strong colonies worked perfectly; only one swarmed so treated, and the yield from linden was fine. There is no better way to work for extracted honey—give plenty of combs early, so the queen will not be crowded. I have used the Hoffman frame long enough now to say that, for this locality, it is perfect; also the Dovetailed chaff hive. Eight frames are enough for me, and the bees say so too, except when the flow is good, then tier up. As a hive to winter in the cellar, the Dovetailed chaff suits me. No loss at all, and bees are in fine shape. I tier these hives up, and do not change a thing. WM. E. L. MILLS.

Lac qui Parle, Minn., July 28.

EDWIN ROBINSON. W. M. GRAY.
ESTABLISHED 1866.
Robinson & Gray,
SUCCESSORS TO
B. F. Southwick & Co.,
Foreign and Domestic Fruits, Canned Goods.
47 & 48 South Market and 5 & 6 Chatham Streets.
Headquarters for Vermont Shipments of White-Clover Honey.

It will be the endeavor of the new firm to meet the wishes of their patrons in the future as the late firm has in the past.

Thanking you for the many past favors received by the late firm, we hope to be favored with a liberal share of your patronage in the future.

All orders and inquiries by mail or otherwise will receive prompt attention. Very respectfully,
Boston, April 2, 1894. ROBINSON & GRAY.

500 YOUNG FERRETS
Now ready to ship at only $3.00 a pair. Price list of Bees and Ferrets free. **N. A. Knapp, Rochester, Lorain Co., O.**

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—By willing young man of twenty-three, employment during the winter or longer, not particular. Best of references. Try me.
Address WM. J. MANLEY, Yale, Mich.

WANTED.—To exchange for any thing useful, White Leghorn and Lt. Brahma cockerels and pullets, also a few B. P. Rock cockerels; these birds are fit for any show and of fine laying strains.
JAS. M. DAVIS, Ligonier, Pa.

WANTED.—To exchange a Noxal 200-egg incubator, comb foundation and honey, for T supers, brood-frames, and zinc slat honey-boards, all cut to order. If you have any thing else to exchange, write me. R. C. AIKIN, Loveland, Colo.

WANTED.—Situation with a bee-keeper, of whom I can learn the business thoroughly—one who makes hives in winter. Have had some experience.
JOHN W. HORTON, 137 Early St., Providence, R. I.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge. After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Ten Italian and Carniolan crossed queens, some one year old and some clipped, as they come, for 25 cts. each. C. BROWN, Zimmerman, Ohio.

Peach Trees

PLANT IN THE FALL.

Peach-trees, all the well known kinds, by mail postage paid, 10, 60 cts. 100, by express or freight, $4.00. Abondance plum-trees, curculio-proof, by mail, 5, 60 cts. 100, by express or freight, $10.00. Burbank plum-trees, same price as Abondance. These are June-budded trees, 15 to 20 inches high, large roots, and sure to grow. The second year after planting, their growth will be so vigorous as to come fully up in size to those which were 2 to 4 feet when planted. Trees will be forwarded through October and November.

CEDAR GROVE FARM,
JOHN CADWALLADER, Proprietor,
North Madison, Ind.

By permission, I refer to the First National Bank, Madison, Ind., A. I. Root, Medina, O.

John Cadwallader, Dear Sir:—I received those trees to-day. Was very well pleased with them. I thought them very nice trees. They were in good condition.
JOHN B. PIERCE,
Boston P. O., Alle. Co., Pa.

☞In responding to this advertisement mention GLEANINGS

PATENTS

Careful attention given to the prosecution of business before the U. S. Patent Office. All business treated as *strictly confidential*. No charge made for services in prosecuting application, until the patent is allowed. Send for "INVENTOR'S GUIDE."

FRANKLIN H. HOUGH,
925 F STREET, WASHINGTON, D. C,

☞In responding to this advertisement mention GLEANINGS

Woodcliff A No. 1.

In order to introduce my strain of beautiful yellow ***Woodcliff Queens***, which are bred from an imported leather-colored Italian crossed with the best 5-banded stock I can procure by ***Doolittle*** method, I will sell ***guaranteed*** purely mated untested queens at 75 cts. each. As I produce large quantities of comb honey, I breed principally for large honey-gatherers. Apiaries near Philadelphia. Address

WM. A. SELSER, Wyncote, Pa.

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.
PAGE & KEITH,
8tfdb New London, Wis.

BBB'S!

If you keep ***BEES***, subscribe for the **Progressive Bee-keeper**, a journal devoted to Bees, Honey, and kindred industries. ***50 cts. per year.*** Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address

LEAHY MFG. CO., HIGGINSVILLE, MO.

90 PER CENT PURE

Business Queens.

On account of a few hybrid drones that may be flying in the air this year I will sell my all-golden-to-tip queens, untested, unwarranted, but am satisfied 90 per cent are purely mated and will produce 4 and 5 banded bees, at 50 cts. apiece. Order some, test them, and be convinced.

WM. A. SELSER, Wyncote, Pa.

☞In responding to this advertisement mention GLEANINGS

Mother Bees.

If you wish the best of queens, or mother bees, send me your orders. Untested queens, 3 or 5 band, 75c each; $4.25 for 6, or $8.00 per dozen. Tested 3-band queens, $1.50 each; fine 3-band breeders, thoroughly tested, the ***best***, $5.00 each; straight 5-band breeders, faultless queens, $10.00 each. Root's goods, Dadant's foundation, and Bingham smokers.

Jennie Atchley, Beeville, Bee Co., Tex.

☞In responding to this advertisement mention GLEANINGS

Warranted Queens, 75c.

Five-band strain, bred for ***business***, six for $3.25; dozen for $6.00. See former ***ads.***, and send for circular. Safe arrival and satisfaction ***guaranteed.*** **J. B. CASE, Port Orange, Fla.**

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,
12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

☞In responding to this advertisement mention GLEANINGS

SECOND-HAND TYPE.

We offer for sale the samples of job type shown below. It is practically as good as new.

BUCKEYE LOCK

Great Primer Concave, 12 A, $1.50.

Pica Fashion.

Great Primer Fashion, 8A, 10a, $2.50.

Large Type.

Dbl. Small Pica Fashion, 5A, 9a, $3.00.

This TYPE for Sale. L. P.

Long Primer Fashion, 15A, 23a, $2.00.

This is a Pretty Face

Pica Condensed Fashion, 18A, 22a, $2.00.

PICA GLIPTIC. 1234567890

Pica Glyptic, 31A, $2.75.

AAAAAAAAAAAAAAAAAAABB BB

Pica Condensed Concave, 21A, $1.25.

This is Extended

Nonp Antique, 20A, 36a, $1.50.

HENRY E. BLISS

Long Primer Concave, 20A, $1.00.

THIS IS A PEARL LETTER

Pearl Gothic, 40A, $1.00.

A. I. ROOT, Medina, Ohio.

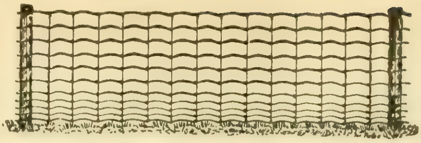
Square Glass Honey-Jars.

REDUCTION.

Have just received a carload of Honey-jars which we offer at a discount of 5 per cent on all orders of two gross jars or over, and at a discount of 10 per cent on all orders of five gross or over, off list prices. Send for catalog.

CHAS. F. MUTH & SON,
976 & 978 Central Ave., Cincinnati, Ohio.

☞In responding to this advertisement mention GLEANINGS.

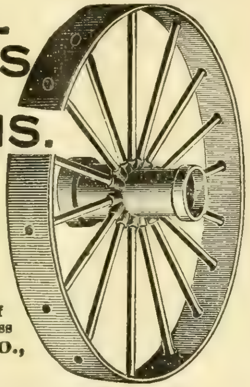


AN EDITOR ON THE STAND.

"A Florida "long horn" was disporting herself in an orange grove when she ran plumb into a **Page Fence.** Her tail made a whisk at the clouds and for one second she was as completely wrong end up as if hung on the windlass in a butcher shop, then measured her length on the ground. She was unhurt and gave her usual mess of milk right along. I saw this myself." Thus writes Stephen Powers, Editor of Farmer and Fruit Grower, Jacksonville, Fla.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

METAL WHEELS for your WAGONS.



Any size you want, 20 to 56 in high. Tires 1 to 8 in wide—hubs to fit any axle. **Saves Cost** many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires. Catl'g free. Address

EMPIRE MFG. CO.,
Quincy, Ill.

☞In responding to this advertisement mention GLEANINGS

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing hat bee-keepers use. **Root's Goods at Root's rices, and the Best Shipping-point in the ountry.** Dealers in Honey and Beeswax. atalog free.

WALTER S. POUDER,
62 Massachusetts Ave., Indianapolis, Ind.

Please mention this paper

Cash for Beeswax!

Will pay 22c per lb. cash, or 25c in trade for any uantity of good, fair, average beeswax, delivered t our R. R. station. The same will be sold to those vho wish to purchase, at 30c per lb., or 32c for *best elected wax. Old combs will not be accepted under ny consideration.*

Unless you put your name *on the box*, and notify is by mail of amount sent, I can not hold myself esponsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio

Bees and Supplies

Always on hand. Send for circular.

I. J. Stringham, 105 Park Place, N. Y.

☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN QUEENS

We have made arrangements whereby we can furnish Carniolan queens at the same prices as for Italians; viz., untested, during this and the next two months, 75 cts. Select untested, $1.00. Tested, $1 50. Select tested, $2 50. We place our own guarantee upon these queens, and feel sure they will give satisfaction to those who desire the gray Carniolan stock. We are also prepared to furnish untested three-banded Italians and four and five banded queens at the same prices. We will also furnish tested Italian queens of last year's raising at the same price as untested as long as they last. Any of the above-mentioned queens, of the plain untested, or last year's tested, and one new subscription to GLEANINGS, $1.50.

A. I. ROOT, Medina, Ohio.

THE VERY BEST GRADES AND WARRANTED TO BE PURE

HONEY

ADDRESS A. I. ROOT MEDINA OHIO.

Daughters of one of ***Doolittle's*** best 5-banded breeders, mated to the choicest drones from Jennie Atchley's 5-banded strain, thereby securing a direct cross with the best 5-banded stock obtainable. Untested, 1 to 100, 50c each; warranted, 65c each. Safe delivery and satisfaction. Money-order office, Monongah. P. O., Worthington, W. Va. **L. H. ROBEY.**

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

MILWAUKEE.—*Honey.*—This market is now in good order, and offers inducements favorable to shippers of comb honey in 1-lb. sections, put up in nice glass front cases, 12 to 25 lbs. each. Will quote for choice quality white 1-lb. sections, 15@16; other than choice, entirely nominal. Extracted, in barrels or kegs, white, 6½@7; amber, 4@5. Beeswax, 20@25.

A. V. BISHOP & Co.,
Sept. 19. Milwaukee, Wis.

NEW YORK.—*Honey.*—The demand for comb honey is increasing, in a jobbing way, in spite of the continued warm weather. Honey is arriving freely, both comb and extracted. We are quoting fancy 1-lb. sections, clover, 13@15; white, 12@13; fair, 10@12; buckwheat, 10@11. Extracted, clover and basswood, 6@6½; buckwheat, 5@5¾; southern, 45@60 cts. per gallon, according to quality. Beeswax, 25@27.

CHAS. ISRAEL & BROS.,
Sept. 20. 110 Hudson St., New York, N. Y.

BUFFALO.—*Honey.*—Honey shows some improvement in demand; nothing particularly positive about increased values. Small sales of strictly fancy 1-lb. comb at 13, and occasionally 14, with larger sales at about 12, common grades ranging proportionately lower, from 10c downward. The only way to test our market intelligibly and fairly is to send a small consignment here and let us show what can be done with it. We will advance, as usual, 10 cents per lb. on any amount of strictly No. 1 1-lb. comb, and do all that can be done with it here.

BATTERSON & CO.,
Sept. 18. Buffalo, N. Y.

CHICAGO.—*Honey.*—Market is steady; volume of business not large. White comb selling at 15. Some lots showing travel stains, not well-filled sections, or crooked combs, at 14. Extracted, without special change; white, in 60-lb. tin cans, sells readily at 7c, while dark and amber bring 5@6 in barrels, and 5½@6½ in cans. Beeswax, ordinary run, 25.

R. A BURNETT & CO.,
Sept. 19. 163 So. Water St., Chicago, Ill.

CHICAGO.—*Honey.*—We have sold thus far this season over 1000 cases of comb honey, ranging in price from 15 to 16 cts. in a small way, while we wholesale it at 14 cts. We can dispose of all receipts promptly, and advise shipments to market early. We will make liberal advances on consignments. Extracted honey is selling at 6c. We are trying hard to crowd the market to 7c for new crop of clover and basswood. Beeswax, 28.

S. T. FISH & CO.,
Sept. 21. 189 South Water St., Chicago, Ill.

DENVER.—*Honey.*—Our market so far has been supplied by home producers, but we have a large mountain trade that requires a No. 1 grade, which we have not been able to get or produce this season. Best consignments of No. 1 comb honey, in 1-lb sections, put up in 24-lb. cases, suitable for putting in cartons, sell readily at 12½c. Second grade, in cases, at 10c. No. 1 extracted honey, in 60 lb cans, 7; No. 2, 6. Beeswax, 25. We can handle to advantage during the season a large quantity of fancy comb and extracted honey.

R. K. & J. C. FRISBEE,
Sept. 24. Denver, Col.

NEW YORK.—*Honey.*—Comb honey is arriving freely, and our receipts up to date number 5394 crates. We quote fancy white 1-lbs., 14@15; 2-lbs., 12@13; fair, 1-lbs., 12@13; 2-lbs., 11; buckwheat, 1-lbs., 10@11; 2-lbs., 9. The market on extracted remains quiet. Supply large, and demand limited. We quote clover and basswood, 6@6½; southern, 50 to 60 cts. per gallon, according to quality. Beeswax firm at 26@27.

HILDRETH BROS. & SEGELKEN,
Sept. 25. 28 & 30 Broadway, New York.

BOSTON.—*Honey.*—Demand for comb honey is still light, with a good supply. Prices range from 14 to 15 for comb, and 5 to 6 for extracted. No beeswax on hand, with a fair demand.

E. E. BLAKE & CO.,
Sept. 19. Boston, Mass.

CINCINNATI.—*Honey.*—There is a fair demand for extracted honey at 4@6 cts. on arrival. Demand for comb honey is good at 14@16 in the jobbing way for choice white. Beeswax is in good demand at 23@26 for good to choice yellow on arrival.

CHAS. F. MUTH & SON,
Sept. 18. Cincinnati, O.

ST. LOUIS.—*Honey.*—Market unchanged. Sales slow. Comb, 11@14. Extracted, in cans, 5@6; in barrels, 3¾@4¼. Prime beeswax, 26.

D. G. TUTT GROCER CO.,
Sept. 19. St. Louis, Mo.

CLEVELAND.—*Honey.*—Our honey market is doing much better than it has for some time, and indications are that prices will advance very soon. No. 1 white, new stock, is worth 16c; No. 2, 14. There are more calls, both for comb and extracted, than we have had the past eight months, and every thing points toward higher prices from this on. Beeswax, 26.

WILLIAMS BROS.,
Sept. 18. 80 & 82 Broadway, Cleveland, O.

KANSAS CITY.—*Honey.*—Comb and extracted honey in good demand. White 1-lb. comb, 16; amber, 14; dark, 12. Extracted, white, 7; amber, 6; dark 4½@5. Beeswax, 22.

HAMBLIN & BEARSS,
Sept. 19. Kansas City, Mo.

KANSAS CITY.—*Honey.*—The receipts of com honey are not large. The demand is fair. We quot No. 1 white 1-lb. comb, 15@16; No. 2, 13@14; No. amber, 14; No. 2, 10@12. Extracted, 5½@7. Bees wax, 22@25.

C. C. CLEMONS & CO.,
Sept. 19. Kansas City, Mo.

DETROIT.—*Honey.*—Best white comb honey, 14@15 no dark offered this week. Extracted, 5½@7. Bee wax, 24@25.

M. H. HUNT,
Sept. 20. Bell Branch, Mich.

A carload of fine extracted alfalfa honey, we ripened, in 60-lb. square cans, at 6c, f. o. b. cars her Small lots, 7c. Samples by mail.

AIKIN BROS., Loveland, Col.

Alfalfa honey, very white, "dead ripe," thick an rich; $8.25 for two 60-lb. cans. Address

OLIVER FOSTER, Las Animas, Colo.
(Late of Mt. Vernon, Iowa.) eoi

Extracted honey in 60-lb. cans at 7 cents.

M. ISBELL, Norwich, N. Y.

Having secured a fine quantity of buckwheat e tracted honey I now offer it in lots to suit purcha er, 210-lb. kegs at 6½c f. o. b.; also 2000 lbs. of bas wood and clover.

W. LAMAR COGGSHALL.
eitf West Groton, Tompkins Co., N. Y.

WANTED.—To buy quantity lots of white con and dark extracted honey.

B. WALKER, Evart, Mich.

FOR SALE.—Choice white-clover comb honey, 14 other grades less.

A. P. LAWRENCE,
16-23ei Hickory Corners, Barry Co., Mich.

Comb and extracted honey wanted, in large small lots. Consignments solicited. Reference, I. Root, or Union National Bank, Denver.

eitf R. K. & J. C. FRISBEE, Denver, Col.

FOR SALE.—7000 lbs. of fine, ripe, extracted bas wood honey, highest offer takes it. Also Itali Bees and Fox-hound pups.

eift ELIAS FOX, Hillsboro, Wis.

BUFFALO, N. Y. Unsurpassed Honey Mark
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prom**

500 YOUNG FERRETS

Now ready to ship at only $3.00 a pair. Price list of Bees and Ferrets free. **N. A. Knapp,**
Rochester, Lorain Co., O.

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CONVENTION NOTICES.

The bee-keepers of Utah will hold their semi-annual convention at Salt Lake City, Oct. 4, 1894. J. C. SWANER, Sec.

CHANGE OF DATE — IMPORTANT NOTICE.

In order to let all bee keepers who can, take advantage of the Harvest Excursion rates which will be given Oct. 9th, we have concluded to change the date of the meeting to Oct. 10th, 11th, 12th. The rate will be half fare plus $2.00. These rates apply east of the Missouri River only. Ask your railroad agent about them. Special rates of 1⅛ fare will no doubt be secured in the territory covered by the Western Passenger Association. These will be announced later, if secured.

St. Joseph, Mo., Aug. 25. E. T. ABBOTT, Pres.

Agricultural papers will please note the change above.

REDUCED RAILWAY FARES TO ATTEND THE NORTH AMERICAN BEE-KEEPERS' ASSOCIATION AT ST. JOSEPH, MO., OCT. 10, 11, 12, 1894.

The Western Passenger Association, under the conditions named below, will grant reduced railway fare to those who travel over their roads and attend the meeting of the North American Bee-keepers' Association at St. Joseph, Mo., October 10–12.

Conditions.—Full fare will be charged going. Return tickets will be issued at *one-third the regular fare*, provided the purchaser presents a certificate from the agent of whom he obtained his ticket, and provided, also, at least 100 such certificates shall be presented. There can be little doubt on this point, especially as special round-trip excursion tickets, even such as are issued to parties of ten, twenty-five, or more, traveling in a body, will count toward the 100, provided each purchaser is careful to secure a certificate of purchase from the ticket agent who sells him the ticket, and to present this certificate at the convention, to be countersigned by the Secretary of the Association. Therefore *do not fail to secure a certificate when you purchase your ticket*, whether single or round-trip, and no matter whether you intend to take advantage of the reduced fare or not. It may aid others in obtaining the reduction.

Time of Tickets.—Valid October 6th to October 5th; that is, they may be purchased three days not counting Sunday) before the first day of the meeting, and the return ticket may be obtained any time up to the night of October 15th.

Railroads.—The following are the roads included in this reduction: Burlington, Cedar Rapids & Nor. Railway; Chicago & Alton; Chicago & Northwestern; Chicago, Burlington & Northern; Chicago, Burlington & Quincy; Chicago & Great Western; Chicago, Milwaukee & St. Paul; Chicago, Rock Island & Pacific; Chicago, St. Paul, Minn., & Omaha; Hannibal & St. Joseph; Kansas City, St. Joseph & Council Bluffs; St. Louis, Keokuk & Northwestern; Illinois Central; Iowa Central; Minneapolis & St. Louis; Missouri Pacific; Rock Island & Peoria; Sioux City & Pacific; Wabash; Wis. Central lines.

When necessary to pass over more than one line, and in case a through ticket with a certificate cannot be obtained, it will be necessary to obtain a certificate from each agent from whom a ticket is purchased, in order to entitle the holder to the reduction on return ticket.

Those who do not live within the territory covered by these lines should, wherever practicable, purchase a local or a round-trip ticket to the nearest line named above, and secure there a ticket to St. Joseph, with certificate of purchase.

Further notice will be given in case other railway lines grant reduced rates.

Harvest Excursion.—Some may be able to take advantage of the "Harvest Excursion" rates (one-half fare plus $2.00) given October 9th, full particulars of which can be obtained of local agents.

Change of Date.—Note the change, as announced by President Abbott, in the date of the meeting, from the middle of the month to October 10th, 11th, and 12th.

FRANK BENTON,
Sec'y N. A. B. K. A., U. S Dept. Agr.,
Washington, D. C.

Friend Root:—I am advised to-day by the C., H. & D. R. R. Co. that the rate of fare for bee-keepers from Cincinnati, to St. Joseph and return, will be 1 and ⅓ fare (one and one-third).

Cincinnati, O., Sept. 26. CHAS. F. MUTH.

Wants or Exchange Department.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange for honey or offers, two pens Cornish Indian Games, one pen English Red Caps, and one pen S. S. Hamburgs. The above is select breeding stock at hard-time prices. Write at once.
YOCKEY BROS.,
North Washington, Westm'd Co., Pa.

WANTED.—To exchange Italian bees for 28-inch high-grade bicycle, Barnes saw, foot-lathe for metal, or any thing I can use.
M. W. SHEPHERD, Rochester, Ohio.

WANTED.—To exchange leading photo. studio in flourishing city of 10,000, for apiary in Florida, bees, or desirable southeastern Florida property. Correspondence solicited.
CORELL & SON, Titusville, Pa.

WANTED.—To exchange extracted honey, for a 12-in. foundation-mill.
I. J. STRINGHAM, 105 Park Place, New York City.

WANTED.—To exchange a Noxal 200-egg incubator, used 3 settings, at $15, comb foundation at market price, and extracted honey at 8c, for honey boards, supers, and brood-frames, cut to order.
R. C. AIKIN, Loveland, Col.

Black and Hybrid Queens For Sale.

I have a few large yellow hybrid queens at 30 cts. each. Safe arrival guaranteed anywhere in the U. S. W. A. SANDERS, Oak Bower, Hart Co., Ga.

Seven young hybrid queens for 25c each, or $1.50 for the bunch. C. G. MARSH, Belden, N. Y.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**
1-23o Ottumwa, Ia. South side.

EDWIN ROBINSON. W. M. GRAY.
ESTABLISHED 1866.
Robinson & Gray,
SUCCESSORS TO
B. F. Southwick & Co.,
Foreign and Domestic Fruits, Canned Goods.
47 & 49 South Market and 5 & 6 Chatham Streets.
Headquarters for Vermont Shipments of White-Clover Honey.

It will be the endeavor of the new firm to meet the wishes of their patrons in the future as the late firm has in the past.

Thanking you for the many past favors received by the late firm, we hope to be favored with a liberal share of your patronage in the future

All orders and inquiries by mail or otherwise will receive prompt attention. Very respectfully.

Boston, April 2, 1894. ROBINSON & GRAY.

The 50-cent Queens Are all sold, but I can still furnish tested queens of this year's rearing at $1.00 each. One queen and the REVIEW from now until the end of 1895 for $1.75.

W. Z. HUTCHINSON, Flint, Mich.

Breeding-Queens Cheap

We have got 50 ***fine*** young select tested Gray Carniolan queens that we will close out at the ***special*** price of $1.50.

Now is your chance to get a fine young breeding-queen of this wonderful race of bees very cheap. They will sell for $3.50 each quick next spring.

Satisfaction guaranteed. Reference, A. I. Root.

F. A. LOCKHART & CO.,
Lake George, N. Y.

☞In responding to this advertisement mention GLEANINGS.

Jumping BEANS They hop, skip, jump, dance, turn somersaults almost incessantly from August to May. Wonderful product of a Foreign tree. Greatest curiosity to draw crowds wherever shown, on streets, in **shop windows,** etc. Just imported. Everybody wants one. Full history of Tree and sample **Jumping Bean** to Agents or Streetmen **25 cents,** postpaid; 3, 60c.; 6, $1; 12, $1.50; 100, $10. Rush order and be first. Sell quantities to your merchants for window attractions and then sell to others Quick sales. Try 100. Big Money **Agents' HERALD, No. 709, J. B., Phil., Pa.**

☞In responding to this advertisement mention GLEANINGS.

FOR SALE. The patent, with tools and machinery for making Pelham's Automatic Comb Foundation Mills.

W. C. PELHAM, Maysville, Ky.

SPECIAL OFFER FOR THE NEXT 60 DAYS.

Untested 5-banded queens, 50 cts. each; six, $3.00; warranted, each, 60 cts.; six, $3.50; tested, 75 cts. Reference, A. I. Root.

Leininger Bros., Ft. Jennings, O.

FOR SALE.

75 HIVES OF BEES.

INQUIRE OF

AUG. LEYVRAZ, Francis, Fla.

Italian Queens Cheap.

My queens are as good as the best. Untested, 65c each; 3 for $1.75; 6 for $3.25. Tested, $1.25. Select tested, yellow to the tips, breeders, $1.50. Virgins, 25c. Safe arrival guaranteed.

G. E. DAWSON, CARLISLE, ARK.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's strain of Italians,** the result of 15 years' careful breeding.

Dr. H. B. Lung, Lexington, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious, energetic bees. I must express my admiration for your success as a bee-propagator."

Warranted queens, 80c each; 3 for $2.00. Select Warranted queens, $1.00 each. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 666 queens. Circular free. eitf

J. P. MOORE, Morgan, Pendleton Co., Ky.

QUEENS. Tested, $1.00; 6 for $5. Warranted, 75c; 3 for $2. Breeders, the very best, $2.00. Straight 5-band, $3. Also apples, Ben Davis, Mammoth Black Twig, Arkansas Black, all leading varieties; whole root only; trees 10c each. On orders of 100 I will pay freight.

W. H. LAWS, Lavaca, Seb. Co., Ark.

Warranted Queens, 75c.

Five-band strain, bred for ***business,*** six for $4.00; dozen for $7.50. See former ***ads.,*** and send for circular. Safe arrival and satisfaction ***guaranteed.*** **J. B. CASE, Port Orange, Fla.**

CAPITAL

Bee, Stock, & Poultry Farm.

W. D. SOPER & SON, Proprietors.

Breeder of Pure Italian Bees, Toulon Geese, $2.00; Pekin Ducks, $1.00 each; Golden Wyandottes, Poland-China Swine, Barred Plymouth Rocks, S. C. Brown Leghorns, etc. Bees in new L. hives, $3.50 and $4.00 per colony. Chicks, $1.00 apiece. Eggs in season, 5 cts. apiece, except geese, which will be 15 cts.

Reference, Union Bank.

W. D. SOPER & SON, Jackson, Mich.

Farm Range. Box 1473.

☞In responding to this advertisement mention GLEANINGS.

World's Fair Medal

Awarded my ***Foundation.*** Send for ***free samples.*** Dealers, write for wholesale prices. Root's new ***Polished Sections*** and other goods at his prices. ***Free*** Illustrated Price List of every thing needed in the apiary. **M. H. Hunt.**

Bell Branch, Mich.

Sample Copy Free!

Please Cut Out

This whole Advt. Sign, and Mail.

☞ Please send me the American Bee Journal each week for Three Months. At the end of that time I will remit $1.00 for 1 year's subscription, or 25c. in case I decide to discontinue.

To the Publishers of American Bee Journal,

56 Fifth Avenue, CHICAGO, ILL.

*Name*____________________

*P. O.*____________________

*State*____________________

32 Pages, Weekly!

13 Carloads of Supplies.

This is the amount we have distributed in a single season, o Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, i you have *little money* and want that little to go as far as possible remember that we are headquarters in the west for all goods i our line; by doing so great a volume of business we sell good cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself o our discounts for early orders. In either case you should write us and tell what you will likely need. I will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially **FOR THE WEST.**

Joseph Nysewander, Des Moines, Ia.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT
$1.00 PER YEAR
MEDINA OHIO

Vol. XXII. OCT. 1, 1894. No. 19.

STRAY STRAWS

FROM DR. C. C. MILLER.

IF QUEENS LIVE on an average three years, then a third of them are superseded every year. Those whose queens are clipped recognize it.

BE CHARITABLE, brother A. I. Don't be too hard on those who think evil of the sugar trust and the Senate. They can't all shut their eyes.

PROF. BUDD, of Iowa Agricultural College, says that soaking pine wood in a strong solution of salt and lime makes it last well in making eaves.

ALSIKE stands foremost as the honey-plant that pays best to raise, taking into consideration its value for other purposes, according to replies in *A. B. J.*

STIMULATIVE FEEDING can be nicely done, I think, in this way: Put on a percolating feeder with 5 or 10 pounds of dry sugar, and add a gill or more of water daily.

A LITTLE SALT is recommended by W. Woodley, *B. B. J.*, to be fed in sugar syrup. He doesn't say why. Possibly because bees like salt. It may prevent granulation.

THE *American Bee Journal* now allows its contributors to spread across a whole page instead of dividing them into two columns as heretofore. They'll feel less hampered. Hurrah for the freedom of the press!

THE EDITOR of *C. B. J.* gets propolis off his hands by rubbing kerosene into it, then washing with soap and water. I've always used butter—that is, when I didn't let the propolis stay on my hands. Emma likes scourene.

COTTON CLOTH seems to do just as well as woolen for percolating feeders, with the advantage that moths don't eat cotton. [That's a point that we hadn't tested. I am glad to know that either gives good results.—ED.]

HORSERADISH LEAVES are much used, wilted in hot vinegar, for aches and pains, as a kind of plaster; but I never heard before of a way to have them in winter. Dr. Peiro, in *A. B. J.*, says dry them *in the shade* between sheets of greased wrapping-paper, to preserve the essential oil, and press in a big book.

"A PINT's a pound
The world around,"

but it doesn't hold good with granulated sugar. A pint of the kind I use weighs 13¾ ounces. [In the case in question, it seems to be near enough.—ED.]

PROF. COOK'S THEORY that bee-paralysis is caused by starvation is opposed by a number reported in *A. B. J.*, as saying that the disease has been observed where stores were plentiful. [If it visits us at all, it is when new stores are the most plentiful.—ED.]

THE CRANE SMOKER, after a full season's use, stands higher than ever at our house. I appreciate, as I did not at first, that hinge that sends the nozzle to the right spot every time. The fact that the nozzle can't be lost is quite an item with one as careless as I.

DROUTH AND FLOOD are the things for which 1894 will long be remembered. In the three summer months the total rainfall here was 2.86 inches. That has been exceeded more than once since by the daily fall. Sept. 7 the U. S. gauge showed 9.08 inches of rain in 24 hours!

AN IMPROVEMENT in super-clearers, by Mr. Meadows, is reported in *B. B. J.* Beside the usual escape there is a hole in the board which lets the bees up to the wet combs, to be cleaned after extracting; then in the morning this hole is closed by a slide, and the regular escape does its work.

WHITE CLOVER not only yielded no honey this year, but it seemed to be utterly killed by the terrible drouth, leaving the chances slim for next year. The heavy rains, however, that came Sept. 5, brought up fresh growth from the apparently dead old roots, and, as usual, we'll begin to bank on next year.

"MAKE A FIRM IMPRESSION in the minds of the many, that British honey is best!" says a correspondent of *B. B. J.* In the same way, some Californians want it believed that California honey is best; Canadians, that Canadian honey is best, and so on. All of which can not be true. Better be honest with the public. [Yes, yes. In York State, some think buckwheat is the best. There is no such thing as "a best honey" for every one.—Ed.]

Hearty congratulations on the death of the editorial "we." All right about the figs, Ernest. Wheel up to the writer's house any day, and he'll receive you with our best bow as I make the presentation speech. [And a bowl of milk besides? I think I'll have to make another trip. Say! ask York whether he likes figs.—Ed.]

After reading on page 725 about the one-gallon-crock-and-plate feeder, I started a *two*-gallon crock over a dripping-pan. I don't propose to be outdone by any young upstart in Medina. [The apiarist was just in, and he reports that this crock feeder is the best and handiest of any thing he ever tried. We shall put a lot of them into use this fall.—Ed.]

C. W. Post, the most extensive bee-keeper in Canada, running 400 colonies, says, in *C. B. J.*, that in double-walled hives, some distance from Lake Ontario, bees winter perfectly outside; but close to the lake he is obliged to cellar them. [Here is an interesting fact that proves that the method is largely a matter of locality. How foolish, to assert that cellaring or outdoor packing will give equally good results everywhere!—Ed.]

I set hens' eggs in a super over a colony of bees Aug. 2. Aug. 23 Ernest helped examine, when we found a small blood-spot in the eggs. Possibly they might have hatched by Christmas. Ernest wanted me then to feed the eggs to the bees, and I tried dumping one in front of a hive; but it didn't seem healthy for bees—killed four right before our eyes. [But the fun was in seeing the bees walk on tip-toe through the stuff, like a cat across a muddy road.—Ed.]

Somehow we don't always get the right idea at a distance. There's W. B. Webster, an intelligent writer in *British B. J.*, who objects to American honey-boards, and says, "I am rather of opinion that bees would winter very much better with wood covers, well cleated together, and a bee-space on the under side." Friend W., that's exactly the way the thousands of Dovetailed hives are used, and no frame is ever pulled up with the cover. Honey-boards are a thing of the past.

Bee-paralysis has many cures reported; but all of the cures seem to fail in the hands of others. The disease disappears of itself, then the cure has the credit. Here's the thing to do: Report something like this: I had ten colonies affected; on five I tried the cure, and the other five were left to themselves. The five treated got well in such a time, and the five not treated kept on with the disease. [There has been so much guesswork on the cause and cure of this disease that we really know no more about it than at first. It's too bad.—Ed.]

GENERAL CORRESPONDENCE

SAN MIGUEL APIARY, CUBA.

A VISIT TO IT.

By Fred L. Craycraft.

Having for some time been intending to make a visit to Mr. Fred O. Somerford, at San Miguel, I saddled my horse a few mornings ago and determined to risk the chance of getting lost in the mountains. San Miguel is about twelve miles northeast of here, on the Havana & Matanzas railroad, and about six miles from the coast. There is a range of mountains between here and San Miguel, and the only way of crossing is by an almost impassable trail. But one is amply recompensed by the beautiful views that can be had; and at one place on the road the whole coast line from Havana almost to Matanzas can be seen on the north, and beautiful valleys on the south, extending almost to the south coast.

The country below, with its quiet villages nestled in among the palm-groves; the sugar-mills, surrounded by the green fields of cane; the puffing locomotive, which is the only thing that denotes any sign of activity, and the ocean for a background, dotted with sails, and the dark line of smoke from a distant vessel, form such a beautiful panoramic view that no one upon seeing it for the first time can keep from exclaiming. "Que hermosa!" (Spanish for "*how beautiful!*")

Arriving at last at the San Miguel apiary, owned by the Casanova Bros., and managed by friend Somerford, I was greeted by the familiar hum of the bees; but the only occupant of the house was a solitary cat; but after tying my horse I began to investigate, and was informed by a señorita (girl) across the way that "Don Frederico" had gone up on the mountain-side to get some spring water. A few minutes afterward Mr. Somerford arrived, and we proceeded to hold a regular bee-convention, discussing bee culture in all its phases.

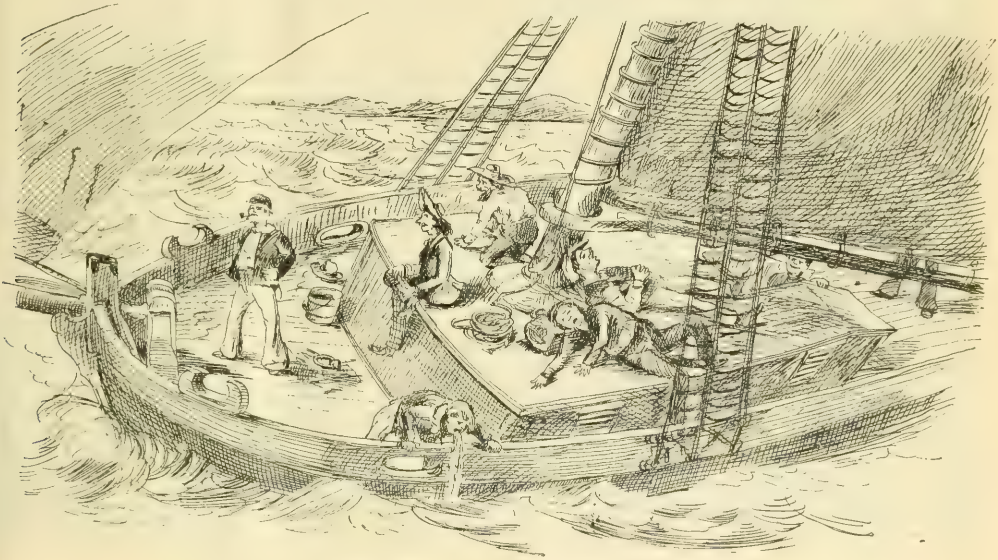
The San Miguel apiary was started several years ago under the management of Messrs. Osburn and King, and was increased at one time to nearly 700 hives, but became infected with foul brood. During the past four seasons that Mr. Somerford has been there he has got very good crops; and, if I remember rightly, he has taken the largest crop ever produced by any one apiarist in Cuba. Mr. Somerford deserves great credit for sticking to it in the heroic manner that he has done, as last year seemed to be an exceptional one for the development of foul brood; and in melting down the combs, transferring and putting the bees through the curing process, he has lost a large per cent of them, but expects to have them in shape to secure a very good crop of honey the coming season.

San Miguel is situated in the hilly "arroya" country (*arroya* means creek or small stream), where there are large quantities of campanilla along the creek-banks, and at the same time the bees have access to the flowers on the mountains, which is a great help during the summer.

After spending a pleasant day and night with friend Somerford, talking over our experience and recollections of boyhood days in our distant homes, and the "pleasures of life's merry morn," I bade him good-by, and in a few hours was back within the sound of the contented hum of the bees, where I found every thing all right after my two days' absence.

Bees are doing well at present, although we had but one little shower during August, and the whole summer through has been the dryest I ever saw in Cuba. The September rains have commenced now, and the bees are whitening the combs in a manner that augurs well for the coming season. I wish to correct a mistake in my last article, where I said the campanilla-blossom lasted from November until the end of July. I do not know whether it was my fault or the typo's; but it should have been, from November till the end of February.

San Jose de las Lajas, Cuba, Sept. 4.



"A life on the ocean wave"—the fellow who wrote it was green;
To sea he had never been, and a storm he had never seen.
Chorus: Oh for the solid land again!" etc.

RAMBLE 117.

O'ER THE DEEP BLUE SEA.

By Rambler.

After putting our hands at other work, and thus splicing out the time to good advantage, we rested that night with clear consciences. We were aroused, however, at an unseasonable hour, somewhere toward morning, by Mr. Mendleson. He was so enthusiastic over that sail to the islands that the big team was again, at an early hour, speeding toward Ventura. The schooner had returned, and the owner was very accommodating in his arrangements, and sent his brother out with us as captain.

The owner, Capt. Fazzio, an Italian, had walked the deck of many vessels, and, with a well-earned reputation as a successful navigator, was now living a semi-retired life as a fishmonger and saloon-keeper. Capt. Fazzio was a short and rotund body. His girth, I have no doubt, equaled his height.

When we went out upon the long wharf we found Messrs. Mercer and Crampton, with well-filled lunch-baskets, blankets, fishing-tackle, etc., all ready and anxious to join us. All told, there were five of us bee-keepers, and three sailors — Capt. Fazzio, a young Italian who could utter scarcely a word of English, pilot Sebastian Ventura, a gray-haired Spaniard who had roamed the seas for sixty years. Then there was a young Spaniard ready to act as a sort of under-officer to pull in fish-lines, and pass around the spittoon and slop-bucket when necessary.

The small row-boat danced merrily over the waves, and, after two trips, landed us and all of our effects upon the schooner, which was secured to a buoy some distance from the wharf. We all walked the deck with firm and elastic step, and shouted to each other, "Now for a sail o'er the dancing billows!" "Oh for a taste of the salt, salt seas!" "Oh! who wouldn't be a mariner?" Bro. Wilder came near dancing a hornpipe on the stern of the vessel, and we were all fantastically exuberant.

The distance to the islands was 25 miles. We were all on board, and anxious to start at 9:30 A. M. The sails were set, and flapped lazily in the slight breeze. Sebastian assured us that, in a short time, a fine wind would waft us over the waters; and surely the breeze did come up, but it was nearly a head wind. Much tacking had to be resorted to. The sail was changed from larboard to starboard; belaying-pins were used freely; the mizzen-sail was run up; the jib-boom fixed; the bowsprit unhampered; the scuppers cleared; the log was rolled to its proper position; the captain and pilot took a fraternal drink from a wicker-covered bottle; the latter grasped the helm, while the former chucked himself into a bunk in the cabin and went to sleep.

Mendleson Mercer. Crampton. Wilder.

BEE-KEEPERS' CAMP ON ANA CAPA ISLANDS.

The swells of old ocean allowed us to rise and fall gently; but after a while the wind increased, and began to brush up the white caps. Mr. Mercer then gave us instructions to prevent sea-sickness. He said that, by reclining on the back on the deck, and looking aloft with a fearless heart, the peculiar sensations would be averted. So he spread his blanket, and reclined. Mr. Mendleson agreed with him, and also reclined; but instead of closing both eyes, like Mr. Mercer, he kept his starboard eye open and his head well ventilated. Bro. Wilder put his arm lovingly aroung the mast. The wind blew through his mustache as he attempted to sing "O'er the Ocean Wave." Mr. Crampton and I sat on the larboard quarter, and talked bees for a long time with decided *sang froid*. At this time our schooner was riding the waves in fine style, rising on a wave, and then pitching recklessly between them. I was filled with enthusiasm, and was just about to make fitting remarks upon the subject, when Bro. Crampton seemed to have a revulsion of feeling, and bent gracefully over the larboard rail, and the breakfast his wife had prepared with so much care was all deposited into the depths of the ocean. Those good potatoes, that savory roast beef, and other fixings that Mrs. C. can so skillfully prepare, all had to go and serve as food for the unappreciative fishes. After this episode Mr. Crampton crawled up on the deck with his blanket, and reclined with the rest of my companions.

Partner Wilder had been quiet for some time. He had taken Mr. Mercer's advice, and was reclining; but his supine condition was suddenly interrupted. Your readers have all heard that old chestnut about the fellow who was so sick that he threw up every thing but his boots. Well, that was Partner Wilder's fix. "Why," said I, "Bro. Wilder, are you seasick?"

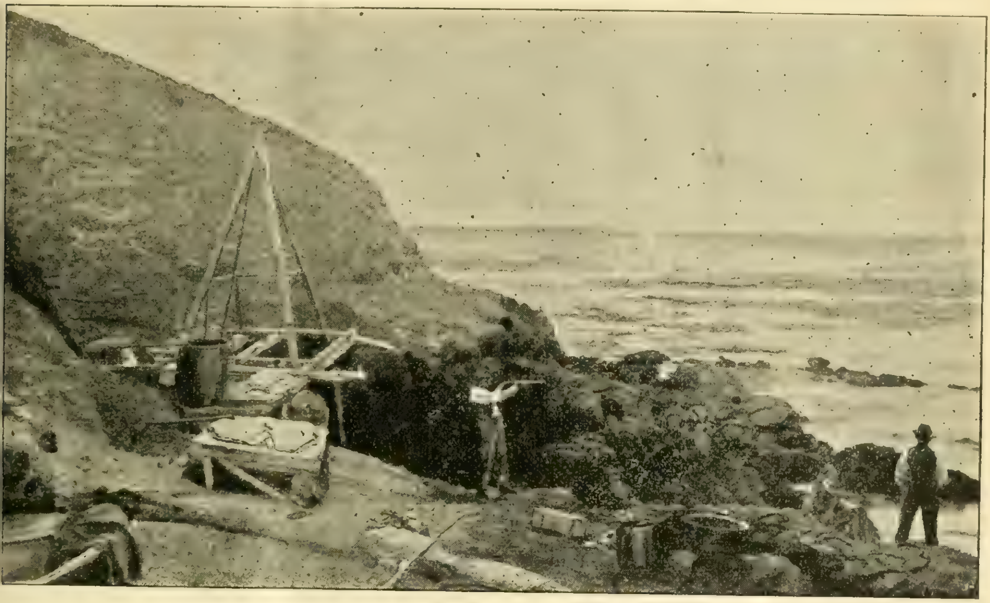
"No—oh, no," said he. "'Tis only a little bile on my stomach."

Then he biled over again. The bile troubled him several times; but—oh, no! he was not seasick.

Mr. Mendleson made a dead failure of his starboard eye and ventilation plan; and the breakfast, so carefully prepared by Mrs. M., went by the board with a regretful groan. Mr. Mercer held out well on his look-aloft plan, but I think he kept his eyes too closely shut; and when a man's eyes are too closely shut, his mind naturally reflects upon internal matters. Let the case be as it may, Mr. Mercer's diaphram kerflummuxed suddenly, and he took his turn at feeding the fishes. I have no doubt the different families of fish down below the boiling waves thought there was a opportune outpouring of hash above for their special benefit.

My four companions were comfortably sick, and took their turns over the rail several times. I had been so busy sympathizing with them that I had not had time to be seasick; and, though this was my first voyage on the ocean in a schooner, and over rough seas, my old habit of providing for the wants of the inner man asserted itself about noon, and I obtained from our lunch-basket some doughnuts and cheese, and sat down near the cabin hatchway near my companions, and ate my allowance. They did not appreciate my kindness in offering them a morsel; but I imagined that there were malign looks darting from their half-closed eyes. I have no doubt I ought to have been seasick with the rest; but I escaped entirely. When I had stowed away my doughnuts and cheese, Sebastian the pilot handed me a large wicker-covered bottle. I raised it to my mouth to find out whether it was water; but, no! it was wine. I desisted there; but the action met with Sebastian's approval, and he approvingly remarked, "Good sailor!" and it was a good thing there was one good sailor along; for when we landed it needed a well man to put up the tent, get some tea, and get the rest to bed or rolled in their blankets as soon as possible.

The next morning all were able to partake of food sparingly, and were able to tramp around the island. The Aña Capa Islands are a group of three rather barren rocky projections from ocean depths, and their formation shows volcanic origin. The wash of the waves has made many indentations, natural bridges, and caves around the rocky sides. Our camp was pitched among the rocks upon the barren shore. It is said these islands are claimed by Mexico. It would be no big claim for any government to wish to own them. Schooners run out here for fishing, for pleasure (like ours), and for seal-hunting. The latter are hunted and driven away until there are but few, where formerly there were thousands. We found a camp of seal-hunters, with their apparatus for rendering oil, etc.; and I should judge it to be any thing but a pleasant occupation. A large herd of sheep were roaming the islands, and the herbage was so scanty that the poor things would get down a cliff upon a mere shelf of rock, and, being unable to either climb up the way they came down, or to get out any other way, they would miserably perish or tumble off into the waves below. While rowing around the island we saw several thus situated. There are no sheep-herders on the island. The owners merely stocked the island, allowing them to run wild, and to survive or perish.



SEALER'S CAMP ON ANA CAPA ISLANDS.

These islands, and the larger islands of Santa Cruz and Santa Rosa, have been suggested as good locations to breed a pure strain of bees; but, owing to fogs and cool nights, it would probably be a hazardous venture. Then the isolation would be an important factor. But few boats visit the islands, and no regular boats touch here; and the person living alone here would become a virtual exile or voluntary prisoner for the time being. The scheme has been tried on the Santa Cruz Island. A person offered $5.00 per day to any expert who would stay on the island in the capacity of queen-breeder; but the $5.00 was no temptation. The bees that were put on the island swarmed, and are now living in rocks and in inaccessible places. I think the Aña Capa Islands would not support bees, owing to their lack of honey-producing vegetation. The isolation is so great on these islands that even a Chinaman, who is supposed to adapt himself to all circumstances, could not be induced to stay; and in his frantic efforts to get away, his employer, in a moment of anger, shot him. The murderer escaped his just penalty through the venality of a judge.

These cliffs on the Aña Capa are the home of the sea-gull. Thousands of them flock to these islands, and we found their nests in abundance upon the cliffs, well stocked with eggs and the young.

When we were ready to return I heard ill remarks in relation to our schooner. It was called an old tub. "Yes," said Mr. Mercer, "we would walk home, wouldn't we, Mr. Crampton? if we could, rather than ride in that thing. I hate the sight of it." But as the "old tub" was the only link between the islands and Ventura, it had to be taken. The old reclining position was taken, and, though the starboard rail sometimes ran into the water, and the spray dashed over the decks, we all reached main land without further sickness. Mr. Mendleson was alert enough to put out his line and troll for barracoda—a long fish resembling the eastern pickerel or muscalong. One was caught, which made us all happy.

On the whole I enjoyed the ocean sail immensely, and I have no doubt that my companions will remember for a long time the hours they spent in riding the crests of the waves with the Rambler.

TEN FRAMES VS. EIGHT.

THE EXTRA-WEIGHT QUESTION; TWO STORIES VS. ONE LARGE STORY FOR BREEDING-ROOM, ETC.

By C. A. Hatch.

When GLEANINGS for Aug. 15th came to hand, and I saw that both the editor and Dr. Miller had themselves ready for another "set-to," I thought it best to reserve my fire until the heaviest of the combat was over; and well it is that I did so, for Dr. M. has hit some "licks" in so much better style than I could that I rejoice in having so good a helper. Now, Dr. M., after you have written thus on the subject you have got to come off the fence, for we ten-framers will claim you any way; and, "honest," wouldn't you spread those eight-frame hives of yours out just two frames if you could without any expense?

As to queens going down after going up into a second story, I can not take back one thing said there. I have had experience by the hundred colonies, right in that line, and it must be the number of frames that makes the difference. I am running fifty colonies this year, with no queen-excluder between the two stories; and when they commenced on basswood we went over the whole lot; and, as is my custom, I put all the brood below, so as to give the bees empty combs above for honey; and I do not think there was young brood in both hives in one out of ten.

In this three-cornered discussion there seems to be an agreement that a certain number of frames of brood is needed to make a good colony. Ernest and the eight-frame advocates say, "Put them above." Dr. M. says, "Put them below;" and your humble servant says, "Let them be side by side." Let me answer Dr. M. first. As I ran 40 colonies right in this line one year, it ought to prove something. The 40 were in an apiary three miles from home. I did not want any swarms, so I ran them on what I have since found to be the Simmins non-swarming plan; viz., put a hive under each, with partly filled frames. They were put there at the commencement of clover bloom, and remained until one extracting of basswood had been made, then they were used above the brood-nest. Out of the 40 colonies, I do not remember a single instance where the queen used these lower combs. The frames were partly full of foundation, and frames half full of combs. In no case was the foundation used over four inches wide. When removed to the top, most of the combs had more or less honey in them, but no brood. As a non-swarmer, it was a grand success. I got 6000 lbs. of honey and one swarm; and did it not prove the preference for upward growth instead of downward? If a queen-excluder had been used, the result might have been different; but would it have shown the bees' preference any better? We can force bees to do things nature does not incline them to, but not always to our advantage.

Let us now look at the plan above. I think Dr. M. has hit you a good one in his idea of the bees losing heat by adding the room above; and it is this following-up of the heat to the top hive which frequently takes the queen up there. Your reply to his point is lame when labor-saving is what you want, not extra manipulation with enamel cloth, division-boards, half-stories, etc. We have admitted, long ago, that, by proper management, *almost* as many bees can be raised in an eight as in a ten frame; but it is this very management we want to save. Talk about lifting hives, when you go and pile another on top that must be lifted off every time you want to see how your queen is doing! Is that easier than lifting off a cover and looking at a frame or two? You may say I do not, as a rule, lift the top hive. How do you know the queen uses both hives then? Can you get the queen to go into supers until the second story is full? How does a queen naturally want her brood-nest? Is it like a long-drawn-out cylinder or like a globe? Which would economize heat most? You say, use half-story hives, and save heat, and have something light to handle. Suppose you have your colony in four half-story hives, equal to two whole hives; is it easier to lift off half a hive three times than to take out a few frames? No. I have tried that. You have to go clear down to the bottom frames before you can really *know* just how your colony is doing; and that is one reason for condemning the Heddon hive.

You make an objection to ten frames for an out-apiary on account of the extra weight of hives and frames to haul and handle. Let us see about that. Suppose you have to haul them to the out-yard in the spring, and back in the fall. This makes two handlings. How much would it cost to hire a man of good strong muscle to do this? Suppose you have 100 to move, and it takes two days to move them. You can hire such a man for $1.25 to $1.50 per day; and is $3.00 worth considering when one colony might make that up? And think of the work saved at swarming-time.

There is one point urged in favor of an eight-frame hive, viz., that it is better for comb honey, which I have not seen answered, which it seems to me is one of the most important that concerns bee-keepers. Now really, friend Root, if you were a comb-honey producer wouldn't you rejoice to get one of those large "boomer" swarms to put your comb honey supers over? and how are you going to get that extra room just over combs full of brood by piling them one over the other?

Doolittle has given his reason for a hive having only 1000 inches of comb surface; but he does not say how he gets around the tiering-up to get the number of frames of brood required. Let me quote something from his own pen that gives me strong argument against it, found on page 293 of the *American Bee Journal:* "Then, again, these thick top-bars, which are used to do away with these brace-combs, place a *barrier* between the brood-combs below and the sections above." If a barrier to the bees, how much more to the queen! for where the queen leads, no bee fears to follow. The italics are mine.

Ithaca, Wis.

[I had expected, on my last bicycle-tour, to plan my route so as to get to C. A. Hatch's; but I was delayed on my way by various causes, and the country so hilly and sandy, that I was obliged, against my inclination, to pass him by. I had hoped that, inasmuch as we had argued the matter through the pages of GLEANINGS, I could "talk it out" with him face to face. However, I am glad that the discussion can be carried on further, even on paper, even if I do appear to get the worst of it, for truth is what I want. That friend Hatch, or any one else, may get stronger colonies in a ten-frame hive than in an eight-frame, we may have to admit; but I think he will also have to admit that we can get stronger colonies in a twelve-frame hive than in a ten-frame. The fact is, friend Hatch, as I have said before, I am afraid the eight-frame body alone is not large enough for a good extracting-colony at its best; and I feel almost as sure that the ten-frame is still deficient, though perhaps to a less extent. For the purpose of extracting, I am coming to believe that the Dadants, in their advocacy of large hives, or a brood-nest not less than twelve frames, L. size, are not far from right. By their fruits ye shall know them. Now, a single eight-frame body is as much as I want to lift personally; and I am sure that two eight-frame bodies will contain as large a colony as can be worked to advantage. So much for extracting.

In the production of *comb* honey, I am not sure that the eight-frame brood-nest standing alone is too small. Indeed, I know of very many who have changed from the ten-frame down to the eight-frame; but very few do I know who have changed the other way. Again, by their fruits ye shall know them; for there are a large number of bee-keepers who secure large crops of comb honey from eight-frame hives. In looking over the whole field I think, if I could make the change as easily as not, without expense, I would hesitate a good while before I would jump to a ten-frame body. I might be content to accept the twelve-frame for extracting were it not for its extra weight; but its weight—there you have it. For the production of extracted honey, I am becoming more and more convinced that the two stories of eight-frame hives gives about the right capacity. Indeed, no less an authority than E. France himself concurs in this. I had come to the same conclusion before I went to his place; and when he incidentally remarked that two eight-frame bodies were just about right for holding *his* colonies, I was quite ready to believe him.

There, now, friend Hatch, you see I not only believe what you say in regard to the advantage of a larger colony, but I would even go two or three steps further; and those "steps further" bring us back again to the eight-frame hive; so in one sense I agree with you, and yet in another I am a long way from doing so.

I have never tried twelve Langstroth frames all in one brood-nest. I have tried the ten-frame hive, and think that, where I desire to go in for strong colonies and an extra amount of brood-rearing, I can do better in the two horizontal tiers than in one brood-nest long spread out. If I were to have a large brood-nest all in one hive-body, I would adopt the Quinby frame, *a la* Dadant; but here, again, whenever I want to move hives I do not wish to be under the necessity of hiring an extra man, or keeping him around. I do not know of any way how *I* can manage bees for extracting without being under the necessity of doing considerable lifting; and that being the case, I want large hives, but in such shape that I can lift them in halves. You may be able, for $3.00, to get all the heavy lifting; but it is the *occasional* lifting as well as the last straw that breaks the camel's back. It doesn't pay to hire a man to do occasional lifting. If I want to get a heavy super off a hive I do it myself, and eight combs full of honey is all I care to handle.

Some of your questions, evidently leveled at me must be relating to something Dr. Miller has said. You refer to me as saying I "do not as a rule lift the top hive." I can't find that I said that. If I did not, then the questions immediately following require no answer.

As I have said before, I am only seeking light. I am willing to "flop" at any moment to the ten-frame as soon as I can be thoroughly convinced that it is the right size; but this "flopping business" is terribly expensive, and should not be indulged in very often except for the best of reasons—reasons supported by the great majority of the fraternity.

I may say, incidentally, right here, that we have been experimenting on a small scale with half-depth Langstroth brood-chambers, but with results that were not altogether satisfactory. The bees will rear brood very nicely in one section, and then it requires a *big pressure* to induce them to go into the next one; but I do not find this to be true of the eight-frame full-depth bodies. So far I am not so much pleased with the half-depth as I once was.—Ed.]

USE AND ABUSE OF SMOKERS.

A PLEA FOR THE MUCH-ABUSED BEES; HOW TO GET ALONG WITH LESS SMOKE.

By R. E. Macnaghten.

When one of those great fires, which seem the almost necessary concomitant of civilization in our larger towns, occurs, we hear sometimes of men being killed by the mere process of suffocation. The actual flames have not reached them, but the volumes of smoke which a great conflagration necessarily causes have been enough, first of all, to deprive them of consciousness and then of life itself. The smoke from the burning debris, and that alone, has in fact been sufficient to stay the vital process altogether. Even on a small scale there are none of us, probably, who do not know how unpleasant the effects of a smoky chimney may be; and yet, notwithstanding the obvious unpleasantness and inconvenience of smoke, when we are dealing with bees we seem to willfully lay aside what common (I might almost say every-day) experience has taught us, and, accordingly, to talk about bees being "pacified" with smoke has become an almost stereotyped phrase among bee-keepers.

Now, I should like to ask, on what possible basis of fact or experience does this theory of bees being "pacified" by smoke rest? No doubt you can drive angry bees away with smoke, just as, in a battle, you could drive away a swarm of assailants with a Maxim gun; but it seems to me just as reasonable to apply the word "pacifying" to the one as to the other process. It would, in fact, be just as reasonable to suppose that you could pacify an angry man by deluging him with a volume of smoke, such as issues from the ordinary smoker, as to suppose that there can be any thing really pacifying in using your smoker to an ordinary hive.

If we may argue from analogy, there are only two effects which can possibly follow from using the smoker in the case of bees. The first is, to drive them away, just as a volume of smoke would speedily empty a room of its inhabitants; and the second is, to partially or wholly stupefy them, just as human beings are stupefied by the smoke of a large conflagration. I have heard it advanced, as a reply to this argument, that, because men who smoke like tobacco-smoke, therefore bees can equally tolerate the fumes from a smoker. Now, I use tobacco myself (I hope in moderation), but I have never found for that reason that I can stand, say, a smoky chimney better than other people.

It must not be supposed that I am decrying the use of the smoker altogether. On the contrary, I regard a smoker as a necessary adjunct to every bee-keeper's paraphernalia; but at the same time, I would say that it is one of those things which should be used as little as possible, and only when it is absolutely necessary. Medicine, no doubt, is a good thing in times of sickness; but just as no sane and healthy man would think of drugging himself without a cause, so I submit that the smoker should be used only in cases of absolute necessity. I doubt, for instance, whether it can ever be really necessary to use a smoker, merely for the sake of examining a hive. Turning my trousers inside my socks, and using a straw hat and a good home-made veil, I am myself never stung, nor do I see how any one who takes these reasonable precautions could well be stung; for is he not armed for his own particular purpose as completely as were ever the knights of the Middle Ages in their panoply of mail? And, if I may judge from my own experience, I am almost inclined to think that bees are much less aggressive when no smoke has been applied to the hive than when they have, *nolentes volentes*, had to submit to the so-called process of pacification. When you are taking honey, it is, of course, a different matter. The bees cling, as it were by instinct, to their combs; and to dislodge them I see nothing for it but to use the smoker, as sparingly as possible, always remembering that its effect, so far as the bees are concerned, can not be of a beneficial character.

Let me conclude by giving one example which may serve to clearly illustrate my meaning. The other day I had occasion to take some honey, and one of my neighbors had got the smoker which I had been using. There was, however, a fire of brush rubbish burning a short distance off; so I accordingly took the frames, from which I wished to dislodge the bees, and, as there was a pretty fresh breeze blowing, I held them so that the smoke from the burning rubbish passed right among them. The frames were very soon cleared of bees; but such was the effect of the smoke that a good many fell stupefied to the ground, in a state which I can describe only as that of partial suffocation. Now, the smoke which was produced by this fire was very similar to that which issues from the mouth of an ordinary smoker, especially when it is filled with dry bark, and I can not help thinking that, from a physiological point of view, the effect of the one on the bees must be very nearly as bad as the effect of the other.

It is a very difficult thing to estimate at all what amount of mortality is caused among bees by the injudicious use of the smoker; but could it be accurately arrived at, I dare say a good many bee-keepers would be surprised to find what havoc they had caused among the inhabitants of their apiaries by the injudicious and indiscriminate use of even a cold-blast smoker.

Port Esperance, Tasmania.

CALIFORNIA ECHOES.

By Rambler.

Wanted, some cheap and sure way to keep bees at home during the fruit-drying season, or a mechanical protection for the fruit. There are millions in it for the lucky inventor, as well as peace between the two classes of producers.

We find in our travels, that, no matter how dry and parched a section of country may be, and not a habitation for miles, a blooming flower of the honey-producing kind will have upon it a busy representative from a colony of wild bees.

Lake County is not to be despised as a honey-producing county. One man reports a yield of 900 lbs. from one colony. Later details will be given in a Ramble. In the same locality, gnats are produced at the rate of a million to the square foot (estimate).

Yellow-jackets are also more numerous and troublesome than bees. They trouble fruit, and meat hung up to dry will be nearly all carried off by them. Our venison was troubled in this way several times. Between hogs and hornets, Bro. Wilder had a hard time to preserve the results of his hard-earned chase.

Bee-keeping in a limited way is indulged in around Oakland. One occasionally meets bees in old box hives, and the owner speaks of robbing so much honey from them by the cutting-out process. Though this primitive way is practiced, there are a few who have their half-dozen hives in proper shape, and secure a good amount of honey.

Mr. Mendleson, of Ventura, thinks it requires some experience and skill to place a decoy hive so that bees will occupy it. It must be so placed that spiders will not weave their webs over the entrance, and not too much in the direct rays of the sun, neither in too dense a shade. Mr. M. pointed out several decoy hives in trees in the canyon that leads to his apiary. Nearly all had bees in them, which shows that Mr. M. has the requisite skill to place decoy hives successfully.

That's a good idea in the *Canadian Bee Journal*, about a revolution in the handling of beeswax. In this State, really good wax is produced by means of the solar wax-extractor; but we have seen good wax spoiled by being melted up in some old dirty kettle. Old combs can be rendered, with care, into good wax; but old rusty tin cans or tubs are used, and the result in this case is an off-colored wax. Let us use care and clean receptacles, and the value of our product will be greatly increased.

QUEEN-CELLS OF TWO KINDS.

THEIR NAMES, AND HOW THEY MAY BE DISTINGUISHED; HOW TO TELL WHEN A COLONY IS TRYING TO SUPERSEDE ITS QUEEN.

By Dr. C. C. Miller.

Not many days ago I was talking with a bee-keeper who is 'way up in matters pertaining to our pursuit, and in the course of our conversation I happened to say something about *post-constructed* queen-cells. His face has a trick of becoming an interrogation-point, and just then it assumed that expression. "What do you mean by *post-constructed?*" said he.

Then it was my turn to become an interrogation-point. "Do you mean to say," said I, "that you have never met the terms *pre constructed* and *post-constructed?*"

"Never read or heard any thing of the kind."

"Why, they are terms in common use, I have always supposed, and I'm sure I've seen them in print years and years ago."

He seemed skeptical, but dropped the subject with something like a challenge for me to refer to book and page.

To-day I spent a considerable time in looking over a good many bee-books. I had a strong impression that I should find the words in the first volume of the *American Bee Journal*, but was surprised to find them neither there nor in any of the text-books. In Dzierzon's "Rational Bee-keeping," page 10, I found two classes of queen-cells mentioned—swarm-cells and supplementary cells, the same thing under a different name. In Cheshire's book, "Bees and Bee-keeping," Vol. 2, page 287, he pictures the two kinds, calling the one *normal queen-cell*, the other *emergence queen-cell*. Finding no mention of any thing of the kind in any of the other books, I went back to the first volume of *American Bee Journal*, and, instead of going by the index, as I had done before, I commenced carefully scanning each page, beginning at the first. At page 54 I struck this passage: "She usually leaves the cell on the 17th day after the egg was laid, if hatched in what the Germans call a *pre-constructed* cell; but will issue from what they call a *post-constructed* cell, sometimes as early as on the 11th, though more commonly on the 12th day after the bees began to transform the worker-cell in which the egg was hatched."

In spite of my impression to the contrary, it is possible that I never saw the terms in any other place, and, strangely enough, no word is here given to tell what the two different kinds of cells are. Dzierzon says, "A common worker-bee cell containing an egg or a larva is changed and widened into a royal cell." and that he calls a supplementary cell, although I question a little whether the bees ever widen a cell so long as it contains only an egg.

Cheshire's term, *emergency*, is better than *supplementary;* but it seems to me *post-constructed* is better than either, for it is descriptive. A *pre*-constructed cell is one constructed *before* the egg is laid in it. A *post*-constructed cell is constructed into a queen-cell *after* the egg is laid.

Cheshire says: "When queen-cells are built in the absence of a queen, it is clear that either an egg or larva must undergo removal, or that the base of the cell upon which the egg is placed, and to which it is fixed, must have existed before the queen's departure. . . . . Under these circumstances the worker-cell is, of necessity, transformed into a queen-cell. To this end, three surrounding cells are obliterated in order to supply foundation-room for the heavy waxen supports the pendulous extension will need, while many worker-cells beneath are cut back, and, for the time, rendered useless by pittings and cross-webbings, to give the new structure firm fixings. Such cells have been accurately called emergency queen-cells, and are produced by bees, without external interference, when they determine to supersede their queen on account of growing infirmity. From this it would appear that the queen is a party to the project of leaving with a swarm, although she is not invited to take steps for her own deposition—she, in the former case, laying, at the suggestion of her children, what may be conveniently called a queen-egg; while, in the latter, they transform into a queen what she intended to be a worker."

It would seem strange that so able a man as Cheshire should make a mistake about a matter so easily determined, and I dare not say that he never saw a post-constructed cell, such as he describes; but I do say that I have seen a great many, and I have no recollection of ever seeing one in which the bottom of the cell was made of four contiguous cells, as he describes. Hold before you a piece of worker comb, and you will see that any cell, together with "three surrounding cells," will hardly look like a proper base for a queen-cell. Moreover, in the many cases in which I have torn down such cells, there is no obliteration of cells, and it is very easy to see at the base the original worker-cell of normal size. If I am not mistaken, Doolittle has called attention to the fact that, in the case of a post-constructed cell, the bees fill up the worker-cell with jelly, the larva swimming out to the surface, so to speak, the enlargement beginning only at the mouth of the worker-cell. Such being the case, it would hardly seem necessary that adjacent cells should be "cut back." I am not prepared to say that such is never the case, but I have found fully matured worker-bees in cells below the queen-cells, and covered by them, there being no cutting back.

In the passage I have quoted, Cheshire teaches that post-constructed cells are erected in case of supersedure of a queen. I am quite sure this is not always the case. I have had many cases of supersedure, and have often been puzzled, when finding queen-cells, to decide whether it was a case of supersedure or preparation for swarming. I should not have been troubled to decide if different cells were built in the two cases, as it is easy to distinguish them, especially in their incipient stages.

I think I am correct in saying that pre-constructed cells are made when a queen is present and at liberty in a hive, whether swarming or supersedure is contemplated, and that post-constructed cells are made in case of the removal or confinement of a queen. An exception occurs when the bees become alarmed for the safety of their queen. Two cases of this kind occurred with me this year. A number of foreign bees entered the hive, and doubtless the bees felt there was danger of their queen being killed, so took immediate steps to rear a successor, making post-constructed cells. The cells were destroyed when it was found that the old queen was all right. Perhaps this ought not to be called an exception, for I doubt whether the queen was at liberty when the cells were started. More likely she was balled.

For the benefit of beginners, perhaps I ought to say that the base of a pre-constructed cell is larger than a drone-cell, and has no angles in it, while a post-constructed cell has for its base an ordinary worker-cell, with six sides and angles.

Marengo, Ill.

[I suppose I shall have to confess that the bee-keeper whom Dr. Miller refers to in the article above, whose face assumed an interrogation-point, was your humble servant. I do not know about his being "away up in matters pertaining to our industry."

Now, then, about those terms. After coming home I consulted nearly all the authorities, or as many as I had time to look over, and I have at my disposal quite an extensive library on bees; but I failed to find them. You see, it is this way: Dr. Miller and the member of his family have been using the terms so often among themselves that they supposed all the world knew them. The source from which the doctor found the terms shows that their use then was long "before my day." On consulting with A. I. R., he informs me that they were used years ago, particularly by the English, in the *British Bee Journal;* but it seems they have become obsolete in our present bee-literature.

I may say, in partial defense, that I was aware that there are two kinds of cells built in the hive—those constructed under the swarming impulse, and those in case of emergency, like, for instance, a sudden disappearance of a queen. I also knew that cells built when supersedure seemed to be the object were constructed like those first mentioned. But, so far as I am acquainted with bee-literature, the only distinction that has been made is in the use of "swarming-cells" as designating those built where natural increase was under way; supersedure-cells for what the name indicates, and simply "cells" to indicate those built under other circumstances.

I am glad to know that my face assumed that "interrogation-point," because it is important that we have differences between the two classes of cells clearly defined; for, as you will see, there is a practical bearing in the matter. For instance, if the novice or veteran is able to recognize supersedure-cells from cells built because of the sudden disappearance of the queen, he will at a glance be able to recognize the condition in the hive, since it is evident that bees are able to detect the failing of an old queen before the apiarist. He can say to himself, "Here is a case where a queen is failing, although I had not discovered it before. I will just let them go on in their own sweet way; and if it is a fact that swarm or supersedure cells are better than other cells, I will save out all but one, to be used in other colonies." But suppose he does not make this distinction. He sees eggs in the hive, and brood—every thing going on apparently regularly. It is toward the close of the season, and he will say something like this: "Cells? how is this? I do not believe the bees know what they want. I will just tear them all down, because every thing seems to be in its normal condition." Perhaps the next visit he will do the same—thus thwarting the bees in accomplishing what is for the best good of the colony. No queens will, of course, be reared that fall. The bees go into winter quarters; the old queen dies, and in all probability the colony dies also: whereas if our apiarist had been sharp enough to recognize supersedure-cells, he would have saved a colony of bees.

I do not know that I like the terms "preconstructed" and "post-constructed" as well as "swarm-cells," "supersedure-cells," and "emergency-cells;" and while I was drilled in Latin, to the extent of some eighteen terms of schooling, I am rather opposed to the use of Latin prefixes in the coinage of new words, that could not be understood by the general reading public.

Dr. Miller and Cheshire do not seem to agree exactly; so I am going to ask him and others to send in to us samples of the two classes of cells, if they can be obtained yet; and I will have careful cross-sectional drawings made, showing the differences; and at the same time I will reproduce the picture in Cheshire's work, so that we can tell definitely whether Cheshire is wrong, or whether he and Dr. Miller are both right.—Ed.]

HOW THEY MAKE PINE BOARDS IN NORTHERN MICHIGAN.

REPORTED BY ONE OF THE YOUNGER MEMBERS OF THE ROOT FAMILY.

Yesterday my cousin, Mr. Newark, took us through the two largest sawmills in Cadillac, and that means the largest in Michigan; and as Michigan is one of the greatest lumber regions in the world, we have probably seen some of the greatest sawmills in the world.

We went first to the place where the logs were being taken out of the lake. There was an endless chain, with great hooks on it, running up a sort of toboggan-slide into the mill. A man stood at the foot of this, heading the logs into it with a pole. When a hook of the chain caught a log it went sailing up the toboggan-slide and disappeared in the mill. About half way up the slide a water-pipe formed an arch and sent numbers of little streams on the log as it passed under. The water struck the log with such force that it loosened the bark in places, and cleaned it perfectly.

After watching this awhile we went up into the mill to see what became of the logs. A man stood at the top of the slide with a long pole, and pushed them off the chain so that they rolled down an incline on either side, where there was already a pile of logs waiting for the saw. On each side of the mill was a car long enough to hold the longest log. This was run by an immense piston-rod in the floor, and went back and forth past a band-saw. A log from the pile rolled on to the car with a jar that shook the mill, and then a great iron arm sprang out of the floor and turned it into place. Just as soon as the log was in place, the car glided past the saw, and in a moment a slice of the bark was off. Then the car rushed back, and the great iron arm, which is called the "nigger," leaped up and turned it over, so that another side was toward the saw. This was repeated until all the bark had been trimmed off, leaving a great smooth white block to be sliced into planks. Then every time the car glided past the saw it left a perfect plank at the end until the whole log was sliced into planks, right before our eyes. Three men on the car worked the levers to gauge the thickness of the plank, and to regulate the speed of the car; but every thing else is done automatically. I don't believe it was much more than five minutes from the time the log rolled on to the car until it was all sawed into planks. A man stood ready to receive each plank, and start it through machines which planed it and cut it into the required lengths for use. The smaller and imperfect slices were made into small boards, and the yet smaller pieces were cut into lath. All sawdust, and pieces too small for other purposes, are used for fuel. We saw a blow-pipe half a mile long, for blowing the sawdust to the furnaces.

It is a great sight just to walk through the lumber-yards. Our lumber-piles, and all the others in Medina, would make but a drop in the bucket compared with these. They have whole lumber-yards under cover, and, of course, have to take every precaution to prevent fire. Sprinklers are all over the mills, just as we have at home, and they have an immense waterworks of their own. All they have to do to get water is to pump it out of the big lake. When we were walking along the tramways outside we saw something that looked like a mounted telescope. It could be aimed at any point of the compass, and raised or lowered. This could throw a stream of water the size of a man's arm to an immense distance. We met one of the partners, and he kindly turned on the water to show us the volume, but, of course, he did not show the force of it. He pointed to a large lumber-pile standing near, and said he could tear it all to pieces by turning the whole force of the water on it. I think one of these arrangements would cover our whole lumber-yard. They had enough to reach all points of their yards.

It was refreshing to see the exquisite neatness and order everywhere. Every little bit of grass between lumber-piles was just a bit of green lawn, and there was not a stick out of place.

As we were walking through the yards to the farthest mill we noticed two or three boards broken in the tramway. When we came back, ten minutes later, every broken board had been replaced by a new one. Mr. Newark says they have a wonderful system of foremen and superintendents. The man who founded this great business is a millionaire several times over, and he had nothing to start on but brains.

NOTES OF BICYCLE TRAVEL.

By Ernest R. Root.

I arrived at Toledo on the evening of the 15th, and it did not take me long to make my way on the wheel over those beautiful asphaltum pavements to that part of the city known as Auburndale. Passing by the great Wagon-works manufactory, I soon recognized the familiar street on which Dr. Mason lives, and in a few minutes more I was enjoying a good visit with the Mason family. The doctor had just been recovering from sickness, and was beginning to feel like himself again. In the course of our conversation I told him I was out on a trip to learn, if possible, the exact right size of brood-chamber, or whether said brood-chamber should be made into divisible halves. The doctor laughed, and, like H. R. Boardman, he very much doubted whether I would get a satisfactory answer; but as for him, he wanted nothing larger nor smaller than the eight-frame Langstroth hive. For his locality, he was sure it was best. Being a little tired, and having a "game" ankle, I retired at a seasonable hour—something I do not ordinarly do at the home of a bee-keeper. During the trip that day it seemed as if the right ankle was going to give out, for it was slightly swollen, and was unwilling to respond promptly in its usual way. Under the instructions of the doctor I bathed it well in camphor. As the doctor poured out the camphor he remarked, "I suppose your father would not think this would amount to much, because it comes out of a bottle; but I know," said he, with a look of decided assurance, "that it will do that ankle good," and it did, for it helped pedal nearly 90 miles the next day.

After breakfast we looked over the Mason bees. As usual, the doctor would not stop to fuss with a smoker, but opened up the bees that morning bareheaded (he is baldheaded, you know), without veil or smoker.

"Yes," said I, "you are at your old tricks again, but I think I will put on my veil."

"Here," said the doctor, after he had removed one hive-cover, "is the way I keep my records."

He then produced from under the cover one of the pieces of a broken one-piece 4¼ section. On it was written in lead pencil briefly the record of the queen and the colony—its strength at the beginning of the season, when it began to store surplus, etc. In the home of almost every bee-keeper there will be a surplus number of broken pieces from 4¼ one-piece sections to go on every colony. These record-tablets, of course, are 4¼ inches long, and the width of the section, whatever that is—probably 1⅞ inches. As almost every bee-keeper has his own method of abbreviating records, it is possible to get on this the whole year's history of the colony. But perhaps some may object to putting the tablet in under the hive-cover, especially if they do not use a quilt or enamel cloth. A small wire nail through the middle at one end will hold it securely on the cover; and each time the colony is examined, the record can be attached to the section-piece fast to the cover itself. The next year a new section-piece or tablet may be used.

The season had not been an extra good one with the doctor; but still he would get some surplus. On some of the hives there were full-depth Langstroth extracting-supers that were waiting to be extracted. On others I noticed half-depth extracting-supers.

"Hello!" said I; "are you using half-depth brood-chambers?"

"No, sir; bees do not breed right in the half-depth brood-chambers, for me."

"Well, what are you using them for on full-depth brood-chambers?"

"Why, look here," said he, turning to his record. "This colony, you see, was not very strong at the beginning of the season, and I did not care to give them a full-depth extracting-super when they showed they were ready to store some surplus; and, having these half-depths, I put one of them on the hive."

"But over there," said I, "you have one hive with two half-depth chambers."

"Well, that colony did better than I expected, and so I simply gave them another one. If I had known at the outset that they would have filled eight full-depth Langstroth frames, I would have given them a full-depth super."

"But *why* don't you like these half-depth extracting-supers?"

"Because it is so much more work getting honey out of them. I can handle," said he, "a full-depth Langstroth frame as quickly as a half-depth. You see, this entails just so much more unnecessary work."

"You are not using any Hoffman frames," said I, turning the subject.

"No, sir, and I don't want them. The loose-spacing thick-top frames are good enough for me."

Looking at my watch I told the doctor I must be off. I had to get to Detroit that day, and, besides, hunt up a bee-keeper who was afraid he had got a disease in a nucleus he purchased of us. Of course, I felt anxious to investigate, and spend enough time to make a thorough examination, and instruct our customer what to do.

"What is the man's name?" said the doctor.

"William Kidder, of Wyandot, Wayne Co., Mich."

In a few minutes more we were walking up the street, and finally came to the turn that would lead me on my way toward Detroit. I had been over the same route a year before on the bicycle, and felt as if I knew where I was going. Usually I am going over roads that are entirely new to me, and I have to go cautiously lest I get on the wrong road. A spin of about sixty-five miles brought me to Wyandot. Here I made diligent inquiry for Mr. Kidder. No one but the postmaster knew any thing about him; and even he said that Mr. K. came for his mail only once a month. After a fruitless inquiry for about an hour and a half, I addressed another note, expressing my regret that I could not call upon him, not being able to find his whereabouts. I felt greatly disappointed, because, if it were a case of foul brood, I wanted an opportunity to see it, and treat it or destroy it entirely. If it were only a case of dead brood, or something entirely harmless, I wanted to assure our friend of that fact; but as the sequel proved, after corresponding in regard to the matter, it was not a case of foul brood; and even if it were, our friend did not attach any blame to us. By making various inquiries along the way, I was assured of what I had previously known, that foul brood is raging pretty badly in Wayne Co., Mich. There are but very few bee-keepers whose apiaries, I understand, are entirely free from it, and the owners of these are fearful that it may get a foothold in their yards at any time.

Well, I mounted the wheel again, and by about five o'clock I was wheeling through the streets of Detroit. I asked wheelmen along the way if they could tell me the best route out of the city to Bell Branch. None of them had ever heard of such a place. Bell Branch, as you know, is the place where M. H. Hunt lives. "Well," thought I, "there is a class of individuals (hotel clerks) who know every thing, or are supposed to, and I can get the desired information of one of them." I wheeled up to one of the finest hotels, and fired the same question at the clerk, but with the same result as with the wheelmen. Inquiry at several of the hotels elicited no further information. I finally found by the map that Bell Branch was directly west of Detroit. Approaching the nearest policeman, I said, "What street runs the nearest west out of the city?"

I was referred to Michigan Avenue.

"Now," thought I, "if I but wheel clear out of the city, and then make inquiries concerning Bell Branch, I shall find somebody who knows about the place."

But it was then late, as I had spent nearly two hours in trying to get the desired information. I accordingly put up at the hotel. The next morning I was on the outskirts of the city bright and early, and, sure enough, somebody did know something about Bell Branch; but I was, of course, on the wrong road. I ought to have gone out on Grand River Avenue, and the only way to get there was to go back to the city three or four miles, and out again on the right road. Well, to make a long story short, by taking cross-roads, and making inquiry of every one I met, I finally reached Bell Branch; but I had gone some sixteen miles out of my way, and through a lot of sand at that.

While I was wandering over the road, and especially when I learned that I might have taken a shorter cut had I gone some other way, I realized what a mistake I had made in not writing to Mr. Hunt beforehand, asking the route I should have taken out of the city. But I got it into my head that Bell Branch was almost a suburb of Detroit, and that every one would know the route. It is bad enough to wheel in the sand; but it is simply *awful* to plow through that article knowing you have gone out of your way, and were doing all that work for nothing, besides wasting valuable time.

I found friend Hunt at home, ready to receive me, as I had written I would be there the day previous; and I would have been there had I taken the right route. Yes, there was the gas-well that had been giving Mr. Hunt comfort and delight—plenty of heat for the cook-stove, and beautiful bright gaslights, all for nothing —absolutely nothing—except the cost of boring some 80 feet and piping it. This part was done by Mr. Hunt and son more for the *fun* than for the expense saved. As if nature had not done enough, his farm was supplying him with a flowing well of water that actually came to the surface of the ground, and soft water at that. But this flowing well is in a valley, and Mr. Hunt had just put up a windmill to bring this water up to the house.

Every thing about Mr. Hunt's place showed evidence of skill, thrift, and enterprise; for whatever he undertakes, he is sure to do thoroughly. He has built up a fine foundation business, besides a trade in bee-keepers' supplies. He has a beautiful farm; and during the short time I was there he gave me a look at some of his fine crops. He began to explain the different varieties of strawberries, raspberries, etc., as if I knew all about it. I had to confess that I knew little or nothing on the subject, that department of our journal being conducted wholly by A. I. R.

Mr. Hunt has secured some honey, but it was a rather light crop after all. His apiary looked very much as I had seen it some ten years before—neat and clean. He had no foul brood that he knew of; but its general prevalence in the neighborhood had caused him to give up the business of selling bees, for *fear* that he *might* get it and give to his customers an unwelcome legacy.

In the afternoon Mr. Hunt kindly piloted me out on my road to Flint, the home of W. Z. Hutchinson. For a mile or so out of Bell Branch the sand was simply awful to an Ohio boy. Mr. H. has learned the art of riding through it, however. Why, he simply *had* to. He led off, and I trailed. It was rather humiliating to one who had ridden so many miles, to find that another one who does not pretend to do much on the bicycle could run away from him, even if it was in the sand. First, the wind blew my hat off; next I fell off. But Mr. H. kept on pedaling right along through the weeds and sand; but when we struck a hard clay road I knew then I had things my own way. Mr. H. rode far enough with me to start me on the right road, and then I leaned over and scorched. I arrived in Pontiac in good season, and there I was told that the road to Flint, some 40 miles—was all sand, and that the wheelmen's road-book advised all wheelmen to take the train. I had previously ridden some 40 odd miles, and concluded I had better take good advice. I did so, and arrived at Flint on the evening of the 17th.

To be continued.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO. N.Y.

SECURING DRONE EGGS; HOW TO HAVE OUR QUEENS MATED TO HAND-PICKED DRONES.

Question.—I wish to rear some queens nearly every fall, but when I get ready to do so I find I have no drones. Can I get a queen to lay drone eggs by putting a frame of drone comb in the middle of the brood-chamber of a strong colony during the fall months?

Answer.—The above subject is one which has puzzled many a queen-breeder, and is one on which I have spent much thought and conducted many experiments, the result of which has proven that, in my case, the trying to rear drones after the middle of August, in an average season, is an entire failure. Prof. Cook, the Dadants, and others, say that drones can be so reared, especially if the colony is fed diluted sweets when honey is not coming in from the fields; but in all my experiments in this line I have failed almost entirely. Nature seems to tell the bees that, as winter draws on apace, drones are not needed, as swarming is over for the season; and, feed as much as I would, nothing but worker brood was the result, even where the bees were confined wholly to drone comb. This season I have had drone comb after drone comb with worker bees hatching out of them, to an extent greater than all I ever had before in all of my 26 years of apicultural life; and so much so that I have almost come to the conclusion that the presence of drone comb in a hive gave no real assurance that I would get any drones at all. With one colony, such was the case at least. I gave them three full frames of drone combs just before the basswood-honey harvest commenced, as I wished only drones from this queen for fall use; and when I came to go after them I thought the capped brood looked queer for drones, and so it was; for I soon saw workers emerging from the cells. I now uncapped several cells, finding only worker-bees as occupants of these cells of drone size. The only sure way which I know of to have drones during September and October is to mass what drone brood can be found immediately after the basswood-honey flow (the same being from the desired queen or queens), in a large hive which will accommodate them, making the colony contained by this hive queenless, so they will keep these drones as long as you wish them, which they will do, providing no queen is allowed to hatch in the hive. Worker brood must be given every ten days, in order to keep up the strength of the colony, else they are liable to be robbed when an entire scarcity of honey occurs in the fall. This hive must also contain a large amount of honey, as a hive of drones consumes much honey, and, if not properly fed, drones are of no value. As our basswood keeps in bloom till nearly August, the drones which are in the egg form, when the combs are massed, will not wear out because of old age before the middle of October, which is as late as queens can be reared in this locality. After all other drones are killed off, this hive of drones should be gone over some day when it is cloudy, and the mercury stands at about 50 to 55°, at which temperature the drones are not likely to stampede off the combs, and all the undersized and inferior drones culled out and killed, after which we can be almost sure that our queens will mate with the desired drones. This hand-picking of drones is quite a tedious job, but pays well where we have the object of the improvement of stock in view. I have practiced the above plan every year for the past six years, so am not entirely ignorant in the matter, and am quite sure I have made much advancement as regards my bees by so doing.

FLAT-BOTTOMED FOUNDATION NOT AS LIABLE TO HAVE FISH-BONE IN THE COMB, BUT NOT AS ACCEPTABLE TO THE BEES.

Question.—I have always used foundation having a natural septum, or base, but am thinking of using the flat-bottomed next season. Do the bees change the base of this foundation before drawing it out? or, after drawing it out, will they fill out the corners with wax, or let it remain with a flat base?

Answer.—Bees never leave the base of the cells as they come from a foundation-mill making foundation with flat-bottomed cells. This is one reason why there is never a base of yellow wax apparent with flat-bottomed foundation, where such is used in producing comb honey. With foundation having the natural-shaped base, the bees often, in times of an excessive honey-flow, add their own wax right on to the raised part of the foundation, so that this added part can be scraped off with the honey, the foundation washed, and the same be nearly or quite as perfect as when given to the bees. This gave rise to the "fish-bone" center in comb honey, complained of when comb foundation was first used for sections, and the flat-bottomed process of making foundation was invented especially to overcome this "fish-bone," if I am correctly informed. When bees are given the flat-bottomed foundation, the first thing they do is to go to work to change the base; and in doing this the side walls are manipulated also, but just how this work is accomplished I have never been able to tell after all the close looking I have been enabled to do; for, when the work is being done, the bee has its head in the cell; hence the vision of curious eyes is cut off so long as it is at work. While I prefer this foundation to all other makes for section honey, it has two drawbacks, which are, that this manipulation of the base of the cells takes time, so that sections filled with such foundation are not completed quite as quickly as is the case where the natural-shaped base is used; and where the sections are placed on the hive before the honey-flow is fully on, the bees will mischievously work at it far more than they will that with the natural base, often biting and tearing it all down, where the honey-flow we expected does not come, so that it is necessary to look after the sections to see that they are all right when the bees are about to enter them to fill with honey, after they have been on the hives during a season or period of scarcity. I have had hundreds of sections which were filled with this foundation, and which had been on the hives during a period of scarcity of honey, the foundation of which was eaten or gnawed away so that only a neck of foundation, of from a quarter to half an inch wide remained next to the tops of the sections, while the lower half of the foundation remained as when put in. When honey commenced to come in from the fields, and the bees began to work on the foundtion, as all good bees should, it would twist about so that it would touch the separators, and be fastened there; and when I expected to take off nice comb honey, the whole thing would be spoiled by the tearing necessary in getting the separators off. This is the worst trouble I have with the flat-bottomed foundation; and were it not for this, I would never think of using any other make in the sections. For the brood-frames I can not see where the flat-bottomed has any advantage over that having the natural base, while it has the disadvantage of taking the bees longer to manipulate it; consequently I prefer the other makes of foundation to this for brood-frames.

[I had always supposed with the rest that drones could be reared out of season at the desire of the apiarist, the same as workers; but Doolittle is probably right. If any one has actually succeeded, let him report, giving the method. Mr. D.'s experience with flat-bottom foundation is quite in line with our own. If I am not mistaken, Mr. R. L. Taylor will have soon some interesting results on this subject in the *Review*. Excuse me Bro. T., for "telling tales out of school."—ED.]

Heads of Grain FROM DIFFERENT FIELDS.

FASTENING FOUNDATION TO TOP-BARS.

If Dr. Miller would make the grooves in his brood-frames wider and deeper, and then fasten the foundation in with wooden wedges I think he would like it better than the German way. Either one full length, or several small wedges, can be used. If the doctor uses small wedges he might get his friend Jake Smith to make them with that jack-knife. Dr. Miller may succeed (with a lot of trouble) in getting his bees to fasten foundation on to the bottom-bar, but they will surely cut it out again. Last year I made some frames in which the bottom-bar was composed of two pieces $\frac{3}{16}$x$\frac{1}{2}$ inch. These I nailed in the end-bars edgewise, ¼ of an inch apart, and I let the foundation hang down between them. With these frames I expected to get some very strong combs; but in handling them this summer I found that the bees were enjoying the benefit of a half-inch space between the comb and bottom-bar. I am making some frames now with just three pieces—that is, without bottom-bars, and I think they are stronger than the old-style frame with thin top-bars. JOHN GALVIN.

East Sherbrooke, Que., Can., Aug. 20.

FOURTEEN-FRAME HIVES; THE PROPOLIS QUESTION.

My bees have done nicely on sumac, which seems to be the best honey-plant that we have in this section, and the honey is better than clover, if any thing. It has given me a good chance to try the Hoffman frames. I find one trouble with them; and that is, they stick so you can not manipulate them quick enough, or as easily as you should. I have been interested lately in reading the various discussions in regard to the size of hive, and would say, for the benefit of those who use ten-frame hives, that I use those that will take 13 Hoffman frames in the lower story and 14 in the upper; and that the queen will use all of the frames in the lower story, except the outside of the two outside ones. Of course, I use division-boards, and do not let the bees occupy all of the room except when I want to build them up for the honey season. I do not find my hives as handy as I wish in the honey season, but they are good to winter with. I contract, and pack with leaves on the sides and in back. I have used over 50 such hives for over ten years, and have been very successful in wintering and springing. I use in the upper story a fine feed-bag filled with leaves. I am of the opinion that the ten-frame Dovetailed hive with two division-boards and a winter-case like the one for the eight-frame hive, and that can be knocked apart and packed up in summer, out of the way, using the covers for shade-boards, would be about the thing. Of course, I use dummies when tiering up.

Pomfret Landing, Ct., Aug. 1. J. L. Hyde.

[Propolis-sticking of the Hoffman frames will be the worst the first season when the propolis is *new;* and it will give more trouble in late summer and early fall than at other times. After the first season's use, or when the old propolis is well smeared over, the *new* propolis will give little if any trouble.—Ed.]

DO QUEENS GET BACK THROUGH THE EXCLUDER?

On page 587 M. W. Shepherd asks, "Was a queen ever known to get back (through the excluder) alone?" Yes, most decidedly. On June 21st I hived a swarm on full sheets of foundation, with queen-excluder and full-depth extracting-super above. On looking over that colony three weeks later, I found one frame in the brood-chamber, with a few eggs and the queen on it, the other seven empty, so far as brood or eggs were concerned. On opening the super there were three frames full of brood, with patches in three more; also two sealed queen-cells. That hive was not opened from the time I saw the queen go into the entrance until the time mentioned above.

Another case somewhat similar, were it but known to your readers, might save some novice like myself a dollar, besides a little vexation. The biggest-looking queen in the yard had got into the super — whether through the excluder or not is uncertain; but the colony was pronounced queenless, and a fine queen introduced. Three days later she was found dead. On looking "upstairs" I found the old queen, and the super full of brood. Wm. Russell.

Minnehaha Falls, Minn., July 21.

[Yes, queens have been known to go through excluders of the very best makes. It is not possible to make the metal exclude all queens, else it would hinder greatly the passage of the workers. But there is not one queen in a hundred that succeeds in getting through. As the metal as now made *practically* excludes, the rare instances in which a queen does succeed in passing are not worth considering. You will find this subject very fully covered on page 830, Nov. 1st, and 888 for Dec. 1st, 1893.—Ed.]

By
ER
Root
Editorial

We (the apiarist and I) have been using the Corneil smoker, with much satisfaction. It seems to have nearly as strong a blast as the Crane—perhaps strong enough for all practical purposes. It is used largely in Canada, I understand.

Dr. Peiro has written a valuable article, under "Our Doctor's Hints," in the *American Bee Journal*, entitled "Something about Kissing." It is not trashy or sentimental, but good sound advice that every mother, and, in fact, every one, might do well to heed. He points out how insidious diseases are conveyed from one to another by this indiscriminate social custom.

Recent experiments are confirming my impressions, expressed a short time ago, to the effect that I thought it was quite probable that we would have to go back to the old-fashioned plain granulated sugar in order to get a satisfactory food for queen-cages—one that would not behave so irregularly. Our bee-candy is now made of the best granulated sugar and honey, with a very little pulverized sugar added in order to help solidify the dough.

Quite a pressure was brought to bear upon your humble servant when it was learned that he was not expecting to attend the St. Joseph convention. But I have felt for some time that my big brother-in-law Calvert ought to get out and be known a little better by the bee-keepers at large; so he will go in my place, and I will stay at home and "keep house." He has been doing this for me, while I was away, and I see no reason why I should not return the compliment.

Elsewhere I refer to the fact that we are now using granulated sugar for bee-candy. We have been testing some of the confectioners' sugar lately used for making queen-cage candy in cake-making over at the house. Let it be remembered that it was with this very sugar that we had such bad results in sending queens to a distance. Well. in cake-making this sugar was not satisfactory, because the frosting would not harden. Perhaps there was adulteration in it that spoiled it, not only for bees, but for culinary purposes also. We have had good results with some frosting sugars; but it seems they are liable to be adulterated.

IN some quarters I see it slyly hinted that there is a "mutual-admiration society" among bee-keepers. I don't know whether I am a member of that society or not. If I have, in a public way, expressed my admiration for some of the friends and editors of rival bee-journals I have met recently, it is because I like them, and because I admire their writings or the service they have and are rendering bee-keepers; but, dear me! I don't expect them to return the compliment. Among other rival trade-journals we see the outcropping of petty jealousies and the usual wrangling among editors; in short, one would think that they had formed a "mutual-wrangling society." I am glad that, in the line of bee-keeping, for the most part there is a marked exception.

THERE seems to be a sort of impression among the farmers in our own vicinity, that extra yellow bees must be extra pure Italians. Judging by the way the orders have run for the yellow stock, this impression must be general; but every practical queen-breeder knows that is a mistake. The five-banders are simply sports, selected for color, from Italian stock —that is all. And by the way some of them sting, it would almost seem as if they had "sported" a little from Cyprian stock. We have quite a large number of colonies of extra yellow bees in our yard, and our apiary has never had crosser bees, or bees more inclined to rob, than this year. They bred like Cyprians, and then stopped long before the ordinary Italians. We shall get them all out of our yard another season, unless their temper and robbing tendencies improve.

THE KINGBIRD NOT ALWAYS GUILTY OF DESTROYING BEES.

W. H. MORRELL, of Chatham Center, Medina Co., O., furnishes the following: One day he noticed a kingbird flying back and forth, and darting around in front of one of his bee-hives. Presuming that the bird was, of course, eating bees, he shot it, opened its crop, and found no bees at all, but quite a quantity of black ants. He then went back and examined the hive, and found the ants quite thick, crawling all over the front and around the entrance of the hive. The bird had simply been picking up, if not an enemy of the bees, an insect that greatly annoys them. We are very glad indeed to get this much in the kingbird's favor. A. I. R.

THE COMING NORTH AMERICAN CONVENTION AT ST. JOSEPH.

As before mentioned, I expect to be on hand promptly at the opening of the first session, and stay there till its close. My son-in-law, Mr. J. T. Calvert, will also probably be present. As he is the business manager of our establishment, he will be able to answer many questions from the kind friends whom we expect to meet, better than I could do it myself. Our good friend Pres. Abbott is leaving no stone unturned to make the meeting a success. See the following from him, just at hand:

TOO GOOD TO KEEP.

I am just in receipt of a letter from Editor Stilson, in which he says: "Our present arrangements are, to leave Lincoln on the morning of the 10th, making a daylight run, reaching St. Joseph about 4 P. M. We shall have a special car on the Missouri Pacific, retaining the same for a reception, either the evening of the 10th or some time on the 11th. Our mark is for an attendance of 40 or more."

This sounds like business; but those who know the bee-keepers of Nebraska as well as I do will not be surprised, for this is just like them; they do not do things by halves. Now, who will be next? Can not the other States that are as near to St. Joseph do as well? Let us make this meeting a grand success, in spite of the fact that the honey crop has been very poor in many localities.

We have secured reduced rates east of the river, and I am sure we can get the same rates west of the Missouri River. EMERSON T. ABBOTT.

St. Joseph, Mo., Sept. 20.

At the close of the convention I expect to make a raid through the central part of Missouri. Of course, I shall take my wheel; and if the roads and weather permit, I propose to take a wheelride from Kansas City to Lebanon, Laclede Co. You can tell, by looking at your maps, about what my route will be; and any of the friends who would like me to call, who are situated along this line, or pretty near it, might drop me a postal at the convention, or, better still, come yourself, and give me the invitation personally. I can not promise to accept all of these invitations; but weather and roads may make it quite convenient for me to do so. To tell the truth, I am almost counting the days until it is time to start—that is, so far as it is right for a professing Christian to do such a thing. We ought to try to make a good use of *every* day, and not be in haste to have the days come and go; but it makes my heart fairly bound, as in schooldays of yore, when I think of a wheelride of three or four weeks through the State of Missouri. You see, I am going into what the map calls the Ozark Mountains. If I should not be able to climb them, I presume I shall find some bee-friend who will kindly help me out.—A. I. R.

PRES. E. T. ABBOTT.

If any president ever worked hard for the success of a convention of the North American, it is Pres. Abbott. If real genuine enthusiasm and hard work mean any thing, there will be a big convention west of the Mississippi. As but few of our readers will have a chance of meeting Mr. Abbott at the convention, I take pleasure in introducing him to you.

PRES. E. T. ABBOTT.

Mr. Abbott was born in Brown Co., O., March 19, 1847, his mother dying when he was six years old. His father traveled most of the time, his son seeing him but seldom. At the age of 11 he moved to Clermont Co., O. During his stay there he joined the Christian church—that branch sometimes falsely called New Lights. He was an enthusiastic worker in the church and in the cause of temperance, joining the Good Templars in 1868. Resolving to enter the Christian ministry he attended the Western Indiana Conference of the Christian church. Here he met Rev. Thomas Holmes, who urged him to prepare further for the ministry. Before finishing his course he had a call to preach at Enon, O. He afterward moved to Eddytown, N. Y., to preach. Here he was married to Miss Emma Ingoldsby. His next charge was Knoxville, Pa. Here, during the Murphy move, he was attacked by a druggist, knocked down three times in the street, and two teeth knocked out. The druggist paid him $300 to settle without prosecution. While preaching at Schultzville, N. Y., he fell under Unitarian influence. His next charge was an independent church at Union Springs, N. Y. Here his health broke down, and his voice failed entirely. At this time he and his brother became interested in the subject of bees. He spent one winter in Georgia. His brother, who was now a preacher in St. Joseph, urged him to go there, which he did in the fall of 1883, conducting the subscription-book business for Harper Brothers. He and some friends bought 200 colonies of bees. In two years more he bought out his partners, and now owns what is known as the St. Joseph Apiary Co. Since that time Mr. Abbott has been an extensive writer on bees, and has also delivered lectures on apiculture. Politically he is a Cleveland Democrat.

AN IMPORTANT MATTER FOR THE ST. JOSEPH CONVENTION TO CONSIDER.

Now that it is definitely settled that I shall not be present at the St. Joseph convention, I wish to call the attention of the association to the advisability of so amending the present constitution that the articles which are now a dead letter, and therefore a reproach to the association, may be either stricken out or something put in their place. This subject has been brought up before, and especially by Pres. Abbott on page 680.

Art. V., on affiliation, requires an annual payment of $5.00 from any society, district, or province desiring to be affiliated with the North American. The payment of this $5.00 is supposed to secure to the affiliated society something in return; but in actual practice it fails to do this. Art. IX. of the by-laws specifies certain benefits that are an actual dead letter in nearly all of its features. It provides, among other things, that the affiliated society shall be entitled to receive two silver medals, to be offered as prizes for honey. Nothing better than bronze medals has ever been offered, and, so far as I know, there has scarcely been any call for them. Again, the members of affiliated societies are said to be entitled to the facilities which may be provided from time to time by the Honey Company—something that never materialized. Again, each affiliated society is entitled to the services of a judge; but, so far as I am aware, the services of this judge were never called for, for the reason that his railroad expenses and hotel bills would have to be paid by the society calling for him. Art. VIII. of the by-laws specifies that a committee of five may be elected, who shall have power to organize itself into a honey-company. This company was never organized; and those of the same character that were put into existence in England proved to be big failures; in fact, I do not believe that any such company can exist under the wing of any organization.

The other articles of the constitution are right as they stand; and I sincerely hope that, if the next convention does not actually amend, it will appoint a committee of one to report at the next annual meeting. I say *one*, because, on account of the great geographical distances, it will be a little difficult for three members to get together. A better way still would be to appoint a committee of three at the first session, with the request that they report at the *last* session such amendments as in their judgment would improve the existing condition of things.

Now, with regard to the affiliation fee, I might throw out, as a suggestion, that only the nominal sum of one dollar be required, and that this dollar entitle the delegate to vote, and that other "rights and privileges," if we can not offer any, be left out entirely. Until we can receive an annual grant from the national government, we can not. as I see, offer any great benefits from affiliation. But I like the idea of affiliation, even if it simply amounts to that in name only; for the name only would signify a brotherhood.

The Ontario Bee-keepers' Association paid $5 00 once or twice. and, failing to secure the "benefits," protested — and rightly too. No wonder no societies are affiliated now.

In making these criticisms I do not wish in any sense to cast any reflections on the good work performed by Thomas G. Newman, the framer of this constitution. Without these objectionable features it would be an admirable instrument; and if there is any blame to be attached to any one for these objectionable features, it should be thrown on the individual members who voted for its adoption, and not upon Mr. Newman, who felt greatly disappointed that it was not properly discussed at the Columbus convention, where it was adopted without a dissenting vote.

THOSE NEW PERCOLATOR FEEDERS, ON AN EXTENSIVE TRIAL, A SUCCESS.

As announced in our last issue. we have been making some quite extensive experiments in the line of feeding, on the percolator idea. I am happy to announce that it is a success; but we get altogether the best results with the crock, a few folds of cheese-cloth, and the plate. We have fed a good many colonies by the gallon-crock plan. Into each crock, by measure, we put equal parts of granulated sugar and cold water. The mixture is then stirred, after which several folds of cheese-cloth are laid over the mouth of the crock. A dinner-plate is set on top and the whole is inverted, and set over the colony. At first the bees show a disposition to take the feed down slowly; but after a little they "catch on," and will empty out a crock in from 24 to 48 hours; but in nearly every instance there will be a very slight residue of sugar clinging to the bottom of the crock. This does no harm on the subsequent feeding; for more sugar and water are put in, and the operation is repeated as before. If you desire to have every particle of the sugar used up in one feed, put the requisite quantity of sugar itself into a cheese-cloth bag, tie its mouth, drop it into the crock, and fill it with water. In a day or two, both the sack and the crock will be empty; and not only that, but nice, clean, and dry.

We have been trying the Miller feeders by pushing folds of cheese-cloth up under the partitions. But we find it is difficult to get the cloth properly tucked in so that in all cases the sugar and water will percolate properly. Although we have fed a good many colonies with Miller feeders on the percolator plan, we very much prefer the crock. I am rather glad that the crock gives the better results. It may spoil the *supply-dealer's* demand for feeders; but every *bee-keeper* will have in the house just the very articles that will make the best feeders in the world, without a cent outlay of expense.

Now that we have given the percolator feeders a good trial, I do not hesitate to say that Dr. Miller has contributed one of the most valuable ideas, in the line of feeding, that have been proposed for many a year. It will save daubing up the good wife's stove, the handling of dripping feeder-cans, and the carrying of water, incorporated in the old-fashioned syrup, to out-yards. By the new idea, during the worst robbing time it is possible to carry a barrel of granulated sugar out into the center of the apiary, and give colonies their doses of food, made up of sugar and cold water, right in the middle of the day. There will be no robbers to speak of. Before the syrup has actually been made, it is inclosed in the feeders, in the hives. Then, too. this percolator syrup, if good authorities are correct, will not crystallize.

But it seems the idea of using sugar and water, half and half, is not new. Here is a letter from F. A. Salisbury, which will explain itself:

> *Mr. Root:*—I have just read Dr. Miller's article on feeding. I have used water and sugar, equal *weights*, for three years, and have yet to find the syrup granulated in the combs. The percolator may be all right, but I can feed with a great deal less bother by using an extractor for dissolving the sugar. The way I do it is: Place in the extractor 100 lbs. of granulated sugar; then turn on it 100 lbs. of water. Turn the basket as though you were extracting, and in ten minutes you will have syrup. The water can be used right from the well. There is no need of its being hot. If at first the basket of the extractor turns hard, you could, the next time, place the water in first, and then pour in the granulated sugar, turning the basket at the same time. Try it.
>
> Syracuse, N. Y., Sept. 19. F. A. SALISBURY.

I have tried this plan, but can not get the sugar and water to mix thoroughly. It has got to stand a considerable length of time. I think it would be better to feed the mixture by percolator feeders than to give it to the bees through the ordinary feeders.

WE have just received a lot of fine imported Italian queens. Price for best selected this fall, $4.00 each; next spring, $7.00.

NOTES OF TRAVEL

BY A. I. ROOT.

ON THE WHEEL.

When we were boys learning to swim, we used to wade away from the shore as far as we could out into the deep water, and then swim for the bank. You see, that was a great deal safer than starting from the shore and swimming out beyond our depth; and I have thought for some time that I should like to make a trip on the wheel in something the same way—go away a hundred miles or more on the cars, and then try wheeling it home. A good many horses go better, you know, when they get their heads turned toward home; and I did not know but my wheel might be somewhat inclined the same way. Accordingly, on the 12th of September I found myself in the city of Xenia, Greene Co., O. Before starting home, my nephew proposed to take me around to see the people and points of interest. One of our subscribers, Mr. Hiram Budge, is starting in bees and small fruits. Their ground is a gravelly loam, just right for gardening, and the gravelly subsoil gives an almost perfect natural underdrainage. This was very plainly understood by an excavation on their premises, where they had been taking out building-sand. Three or four feet below the surface was a stratum of porous gravel—so porous that the water from the heaviest rains is out of sight almost as fast as it falls. Down still deeper there is a subterranean flow of water. This he found by sinking wells; and it was further evident by going over to a hillside, perhaps half a mile away, where this underground vein of water came out in the form of a magnificent spring of beautiful soft water, in sufficient quantity to water a small town; and delicious watercress was scattered all along down the hillside where the spring water flowed. Our friend told us that it was sold in market to some extent in the spring of the year; but I found it most excellent, and just right for use, so it seemed to me, even in the fall.

HOW THEY MAKE ROPES.

Xenia is celebrated for its rope-manufactories, or rope-walks, as I believe they are called. The raw material comes in large bales. It looks like coarse tow or flax. My companion said it was either hemp, sisal, or jute, he could not say which; and as we were in a hurry we did not find out. Some of the readers of this can tell us more about it, perhaps. I was much interested in this process of straightening out this tangled-up fiber so as to make a smooth, even, soft, endless line or tape. The operation is something like combing out the snarls in a schoolboy's hair. The fiber, when it goes into the machine, seems to be all snarled and twisted up, and it has to be combed out. The teeth, which are firmly fastened in a leather belt, are like long slender spines of tempered and polished steel. In fact, they look like long delicate thorns, such as we see on some varieties of thorn-trees. First a belt, moving comparatively slow, takes up a lot of this fiber. Then the same kind of belt, moving at a higher rate of speed, pulls the fiber from the first belt. Its more rapid motion has the effect of pulling out the tangle, or, in other words, drawing each strand of the fibers out straight, ready to be made into a rope. This operation is repeated, each spine-covered belt moving faster and faster until the big soft rope, the size of your arm, gets gradually attenuated down to the size of your little finger; or, for binder's twine, it comes down still smaller. It seems a little strange that the final work of these machines should be to make this soft untwisted rope or cord so perfectly even and regular in size, and with the fibers so straight and true that one can hardly believe that each individual thread does not run from one end of the rope to the other. After this rope of fibers is straightened through, then the twisting and braiding machines get hold of it; and, oh my! how they did just make the work fly as they piled up the coils of beautiful rope! In this way every thing is made, from the size of common binder's twine to the great ropes used in the oil-fields to handle drills weighing tons, and which are let away down into the earth a quarter of a mile or more.

VISIT TO A CANNING-FACTORY IN XENIA, O.

We next visited the tomato-canning factory. The weather was exceedingly warm, and the tomatoes had been ripening tremendously. Before we got near the factory we found the streets filled with teams loaded down and piled up with bushel boxes filled with tomatoes. At Xenia they do not take any particular pains to shut out visitors. In fact, they are so crowded with business, to take care of the tomatoes before they spoil, that they have pushed their works almost out into the open air. Let me try to follow the process all through.

As the farmers come in with their loads, a boy with checks in his hand gives each new comer his appropriate number, that he may unload and go home in his proper turn, so as to have no rivalry or crowding past each other. Sometimes these teamsters have to stay in the streets all night, waiting their turn, especially when the weather happens to rush the tomatoes. Well, the next load is called for, and the boxes are lifted out of the wagon, and weighed, the owner receiving some sort of check for his product. Close by the platform where they are lifted from the wagon is a huge perforated boiler. Into it the tomatoes are tumbled, without any washing or sorting either, so far as I could discover. In fact, the whole establishment was rushing things at such a rate that there was hardly time for any thing of the sort. By means of appropriate steam-pipes the wagonload of tomatoes was brought up to the boiling-point, or pretty near it, in a twinkling; then by means of appropriate machinery the perforated boiler was lifted from the water, and its steaming contents turned into a large tray or vat. Inside of a great inclosure, more than a hundred women were at work peeling tomatoes. They get three cents a bucketful for this operation; and the wagonload was passed into the buckets, held up to receive the scalded fruit, just about as fast as they were unloaded from the wagons outside. Each one carried her bucketful to her own appropriate stand or table; and as she peeled them the inside was dropped into another similar bucket. These women and girls get to be very expert. With almost one cut of a knife the peel is removed and the tough part around the stem cut off. In fact, they work so rapidly that a good many times there must be a good deal of the tomato wasted. The peelings are dumped into great wheelbarrows. These go out along a platform, and are dumped into a sort of pit, or pond, excavated in the soil. As this stuff soon ferments, a quantity of lime is sprinkled on it as the material accumulates. I do not know what the city of Xenia thinks of this way of managing; but unless this material is carried off and plowed into the ground, I should be afraid of the consequences. It seems to me this refuse must be worth something to feed to pigs, provided one could gather up pigs enough to take care of it all. I believe Cummins draws his refuse directly out to the fields, and has it plowed under. Let us now go back among the women-folks.

The peeled tomatoes are poured into a large hopper. Under this hopper an automatic machine for filling cans puts just the right quantity into each can; and some quick-fingered girls lift the cans out of the way as fast as they come out of the machine. The empty cans are fed into the machine through a long shoot, or trough, that seems to go away up into the attic. After the cans are filled, the grooves for the solder are carefully wiped out by more girls. Then another lot put on the caps. Each can is then placed on a revolving table, and the proper amount of powdered rosin is sprinkled on while it revolves. Then a gang of expert tinners, with a hot iron in one hand and a bar of solder in the other, fill the groove with solder. Some more women pick up the soldered-up cans from the revolving table, and then they are put into wire-cloth cages, or trays, perhaps two dozen in a tray. These trays have a sort of bail made of four chains. When this chain bail is not in use it lies down on the can-tops so they can be tiered up. They do not get tiered up very high, however, for some smart muscular colored boys grab them with a sort of revolving crane, swing aloft in air, and then lower each cage into a vat of boiling water. The water is boiled by means of a steam-pipe. When the tomatoes are boiled long enough, they are yanked out and placed under a shower bath of cold water. When cool enough so they can be handled they are wheeled out into an open yard outdoors, and stacked up to dry. Out in this yard we not only found carloads but *trainloads* of canned tomatoes right in the open air. I asked them what they were going to do if a shower should happen to come up. They said they tried to get them under shelter somewhere before they were kept wet very long.

Now, somewhere in the process I think somebody pricked a hole in the cans when boiling hot, to let out the air and steam; but in thinking about it afterward I could not see where this was done. I did see one man *mending* the cans that had burst by the pressure of the steam; but the whole operation was rushed forward with such rapidity that one could hardly tell what *was* being done. Why, I really believe that a load of tomatoes standing in the street might be put into cans, and soldered up ready for market, inside of half an hour. I asked my companion if they had a set of farmers around Xenia who are so conscientious that they never bring a rotten tomato to market. He said he did not quite know how they managed that part of it; but I have been told that, if the least bit of decayed tomato goes into any can, that can will commence immediately to ferment, and the can will bulge out so that it can be easily sorted out from the lot; and we saw in that same dumping-ground quite a few bulged cans. I would suggest that, if anybody is going to buy that sort of compost for manure, he does not want any *tin cans* to plow under in his garden. I know from experience that tin cans are *not* valuable as a fertilizer.

Where a contract was made for the tomatoes, the price was, if I am correct, 24 cts. a bushel; but to others, who brought them in where there was no contract, they paid only 18 cts. After one has visited such an establishment, and noted the rapidity with which each operation is pushed along, where almost all of the work is done by the piece, he generally concludes he can not compete with these canning factories by doing the work on a small scale. I have had some experience in this line. My impression is, one had better sell his surplus tomatoes for what he can get, or let them rot on the ground, unless he makes a business of it. It costs quite a sum of money to rig up; and when once started, unless a considerable amount of business is done it can not pay expenses. Drummers are offering the new crop of 1894 already, as low as 90 cts. per dozen cans. This, you see, is only 7½ cts. each at wholesale. Of course, it is all right for each family to put up what they want for their own use in glass cans, using the same cans year after year, and thus cut off the expense of cans to hold the product.

SOLDIERS' AND SAILORS' ORPHANS' HOME.

After I visited the canning-factory I had a limited time to pass through the grounds of the home mentioned above. It is a most beautiful place; and the way in which every thing has been done that money could furnish to make it pleasant and comfortable for the children is indeed wonderful. Instead of having them all in one great building, their sleeping-rooms, if I am correct, are in small substantial structures scattered over the beautiful lawns. Covered pathways, however (that reminded me of those we have between our different factories here), enable the children to go out to and from their meals, probably even during wet and stormy weather. The beautiful walks and drives, and the gorgeous display of flowers and foliage plants, are equal to any thing I ever saw. Only one thing seemed to be lacking—mothers for the motherless boys. Very likely kind motherly women are employed to look after them. In fact, there must be something of the sort, for I am quite well acquainted with several boys who have been brought up mainly in this institution. In fact, some of them are now in my employ; and during vacation time, when they come home, I often get quite a little information from them in regard to this beautiful spot. As I saw them scattered over the ground at work and at play, an involuntary "thank God" rose up many times, to think that our State of Ohio has had the prudence and forethought to provide this home for these little unfortunates.

I expected to start for Dayton, sixteen miles away, in time to reach there before dark. At just about starting-time I found out that a young married couple, particular friends of mine, had, for some reason, given up going to church of late. The husband was formerly a church-member in another town, and he had not as yet procured and presented a letter to any of the churches in Xenia. His reasons for holding aloof from bodies of Christian people were, that there were so many in the church who are "professors and not possessors." I plead with them long and earnestly. The husband was acquainted with the pastor of the denomination to which he belonged, and he admitted that this pastor was a good man—yes, a grand good man. Why, dear friends, the pastors of almost any of our churches are grand good men. Now, suppose one of these young ministers—one who is good and wise, and full of God's spirit, should happen to have —well, say in an extreme case he had a good many in his church who are not as good Christians week days as they are on Sunday. What is to be done? Let him fight the battle alone? God forbid! Suppose bad boys go to your school. Will you keep your children out on that account? Certainly not. Rally round your pastor. If hypocrites have got into the church, get in yourself and crowd them out— or, better still, MAKE good men of them.

My exhortations gave me a wheelride in a strange country partly after dark; but they made me very happy. When I began inquiring in the streets of Dayton, well along in the evening, for the home of L. L. Langstroth, it seemed to me I never met so many kind and pleasant people. Do you know why? Well, it was because that little bit of work had brought the spirit of Christ Jesus into my own heart. When he commissioned his disciples to go abroad throughout the world he bade them first "go rather to the lost sheep of the house of Israel;" and there seems to be a special blessing resting on every little effort that is made to bring back to the fold backsliding Christians. As friend Langstroth's daughter, with whom he is living, had recently moved, it was well along in the evening before I stood before their pleasant home. Mrs. Cowan has a beautiful family of seven children—four boys and three girls. The father of this little flock was called away some two years ago, and now the charge—at least the greater part of it—of looking after the seven children and the aged father falls on Mrs. Cowan. As I was introduced to the different members of the family it seemed to me that I never saw a more beautiful household. The grown-up son and daughter were about such children as you might expect with such a mother; and the mother was just such a lady of culture and refinement as you might expect to find the daughter of L. L. Langstroth. Two little girls, of ten or twelve years, made the house bright with their childish voices and pretty ways. One of them is already showing a great inclination to be a teacher. Teaching school seemed to fill all her childish thoughts and aspirations. Come to think of it, has our nation produced many greater teachers than father Langstroth? and is it at all strange that even his grandchildren should show a bent in that direction? Our old friend had started to retire; but when he was told that A. I. Root was in the house, he made haste to come down. I was rejoiced to find him feeling so well. One little incident that occurred shortly after my arrival greatly pleased me. Friend L. and I were having a very pleasant talk, but I thought I noticed that Mrs. Cowan had something on her mind. Finally she said to me, in a most kindly way, that it was the night for their regular prayer-meeting, and that, although she knew beforehand it would afford me great pleasure to go with them, she was inclined to think duty called me for once in another direction. The old father caught on to the suggestion at once. Said he, "Yes, yes; you go to meeting, all of you, and let *me* have Mr. Root just this time."

Now, I tell you, friends, there is something of importance in this little incident. I once heard of a great and good man who always attended the weekly prayer-meeting. If he had visitors he would inform them promptly of his regular habit, and either take them along with him or arrange for their entertainment elsewhere. "Seek ye first the kingdom of God, and his righteousness," no matter who your guest is. A little after, in our conversation, something called up a beautiful text from our old friend. If you have never heard him repeat scripture promises, you can form but little idea of the inimitable way, peculiarly his own, with which he brings out and unfolds their wondrous truths. I can not exactly remember, but I think that, in answer to some of my inquiries, he was telling me of the burden of care that had fallen upon his daughter by the death of her husband. But there is a bright hopeful look on that beautiful face, that makes one feel she has some hidden sustaining power to lift her over life's trials; and then comes this text:

> Be careful for nothing; but in every thing by prayer and supplication with thanksgiving let your requests be made known unto God. And the peace of God, which passeth all understanding, shall keep your hearts and minds through Christ Jesus.—PHIL. 4:6, 7.

As he repeated the words, I noticed a particular emphasis on the word "thanksgiving." Now, friends, when we make our requests known unto God, is that element of thanksgiving always in our hearts? and when he repeated the words, "the peace of God, which passeth all understanding," it reminded me of my experience in riding the wheel that evening in the dark. I had *forgotten* there were words of scripture to so exactly describe it.

The next forenoon it was my privilege to visit the Soldiers' Home at Dayton. All I have said in regard to the Orphans' Home at Xenia will apply to this; but the Soldiers' Home is on a more extended scale. The lakes, the waterfall, the fountains, the springs, the flowers, not forgetting the aquatic plants in a little pond, warmed by steam when the weather demands it, were beyond any thing I ever saw anywhere else. The World's Fair was nothing compared with it; neither did I see any thing in San Francisco, New Orleans, New York, or Boston, equal to it. There had been recent showers to beautify every thing; and with friend Langstroth near by I was in an especial frame of mind to enjoy every thing. I soon suggested to my friend that I feared the occupants of this beautiful home were not furnished with work when they preferred to work. I was told, however, that every one could have all the work he wished, and reasonable pay, and that pretty much every thing done there on the grounds was done by the old soldiers—of course, under competent and skilled directors. A good many of them were getting well along in years, and deaths in the hospital are quite frequent. As I could spare only about an hour, I did not by any means see every thing on the grounds, for it would require a day or more to look through all the buildings.

It seems almost out of place right here to find fault with the United States government after it has done so much; but a letter that has been for several months on my desk kept recurring to me. I finally asked Mr. Langstroth if it were true that these veterans of the war were furnished intoxicating drinks on these beautiful grounds. He admitted that it was, and expressed much regret. The government has some logic in defending the custom. They say that, if the old soldiers could not get drink on the grounds they could find it in Dayton or elsewhere; and should they get off on a spree they could be much better cared for on the grounds than to find them off somewhere in some low doggery. You see, as it is now, they do not have to visit low doggeries at all, for they can get a glass of beer right at home. Notwithstanding this fact, I noticed, however, gorgeous beer-palaces all along the road to the grounds, some of them quite near the entrance. May be I am getting a little extravagant. The proprietors evidently tried to have these places "gorgeous," but they did not strike me that way. There was one thing about them, however, that I enjoyed. It was, that the most of them seemed to be rather run down, as if they were having a rather dull time of it so far as business was concerned. The paint originally put on was a rather cheap sort, and other things were of like character. If the hard times has been the cause of making them look rather dilapidated, then I for one shall feel like thanking God for the hard times. While on this matter of temperance, permit me to say that, while in Xenia, I learned that Mr. Howard H. Russell had just been giving a series of temperance meetings there. He succeeded in making his way into every one of their nineteen saloons before the saloon-keepers woke out of their stupidity to know enough to tell who was among them. Then in a rousing speech the evening following, he told the citizens of Xenia just what he had found in the saloons in their own town. A number of arrests followed at once, one saloon-keeper being fined $100 or more. Now, let us not only pray that God may spare the life of our intrepid "hustler" in the temperance work, but let us keep watch when he comes to our part of the State of Ohio, and spring forward to lend him a helping hand. Keep your eyes open, and be on hand to give the movement a lift, when you hear that the work of the Anti-saloon League of the State of Ohio has commenced in your neighborhood.

The waterworks of Dayton are supplied by a very deep artesian well. Friend Langstroth told me that they met a queer phenomenon, which no scientist has yet been able to explain; namely, the water from this artesian well comes so near the freezing-point that at times the temperature is down to 34. Can any of our readers tell me more about this? I do not profess to be a scientist, but I offer this explanation: The hot-water springs in California and other regions were formerly supposed to derive their heat from volcanic agency, or the natural heat of the globe. It is pretty well settled now, however, that it is due to chemical action. A subterranean spring, in its course through the rocks, dissolves certain minerals. Another stream is impregnated with some other mineral. When the two unite, heat is evolved. This is a familiar experiment in chemistry. We also produce a *low* temperature by mixing different solutions. Any work on chemistry will tell you about it; and I would suggest that the low temperature of the water at Dayton is owing to the mixture of two or more waters charged with different chemicals as they come up out of the well. Perhaps one stream comes out hundreds of feet below the other. It is true, the waters of Dayton are remarkably pure; but a very small quantity of these minerals in solution would serve to lower the temperature of the water to the point mentioned. Now, if this is not orthodox chemistry, will somebody please straighten me up?

On the afternoon of Thursday, Sept. 13, I started on my homeward trip, my longest continuous journey on the wheel. I felt anxious to know how I should stand it when followed up day after day. The country between Dayton and Ludlow Falls is some of the finest I ever passed through. Notwithstanding the excessive drouth, the fields of corn which lined the way seemed bending beneath the weight of the enormous ears that hung straight down. With corn worth more than wheat, these Montgomery and Miami County farmers ought to feel happy. Ludlow *Falls* was all right except the lack of water. At Pleasant Hill I was admonished that no wheelmen were allowed on the sidewalks. Just a word in regard to this town or city ordinance. It is all right for any town or village to decide that it does not want wheels on the walks; but it certainly is not Christianlike nor United States like to fine a man $5.00 for riding on the walk before anybody has informed him that it is contrary to the rules of the town. I did not get fined, mind you, for somebody was kind enough to tell me; but I was informed that, in this town, and other towns, it is a frequent occurrence to make a wheelman pay the fine, even though he be a stranger, and in the town for the first time in his life. In one place I was told they had quite a lot of wheels in the pound because the riders had not the $5.00 with which to pay the fine. I soon learned to inquire, on approaching a town, whether wheels were permitted on the walks when the roads were impassable. In nine out of ten places there was no objection. At Pleasant Hill the roads were so muddy from one curbstone to the other that it would be impossible for anybody to keep on a wheel unless he had been through such a training as I have on sandy roads, etc. At Wapakoneta, Auglaize Co., one long street was completely torn up in order to make repairs; and yet if a wheelman should innocently ride a single rod on the broad pavement he was fined without notice or warning. There may be a few who would be contrary and stubborn when informed of corporation rules, but not many. At one place I was informed they got quite a little sum of money by these fines, to help repair the roads and walks. I hope this is a mistake. It savors of a kind of tyranny and injustice that it seems hard to believe exists among the good people of our State of Ohio.

By the way, all through Miami Co. I found most beautiful graveled roads; and I found this kind of roads in approaching Pleasant Hill, and going out; but right through the main street of the town, the mud was abominable. I presume, however, they are just now making the needed repairs, for everybody in town seemed to be busy fixing up sidewalks.

I reached Covington just at dusk. I knew there were quite a few bee-keepers who received GLEANINGS at that office; but on inquiry I found them too far out of town for me to make them a call. It seems a little strange that, after riding the wheel day after day, I rarely feel any inclination for my regular nap before dinner and supper; but as I came into this place rather late in the evening, I felt much more like going to bed than doing any thing else; and I questioned just a little as to whether it was really my duty to hunt up the Christian people and see if there were prayer-meetings somewhere there during this, our regular prayer-meeting night, Thursday evening. I heard a bell ringing, and, without stopping to inquire what denomination it was, I went in. I was a little early, and I found only one person there before me. He explained to me that it was the night for their choir-meeting, but said there was a prayer-meeting at the church across the corner, and he kindly walked over with me. The meeting had not yet commenced, so he beckoned to the leader as he sat at his desk. Then my friend explained:

"Bro. ——, here is a stranger in our town, inquiring for a prayer-meeting."

You can imagine how the young pastor's face beamed as he took me among the congregation. Before the meeting was closed I was invited to speak; and after closing I was surrounded by Christian friends. The prayers I heard at that little gathering, and the testimonies for Christ Jesus, some of them, will follow me, I hope, through life. Oh how it did thrill my heart to find that one could go into almost any little town in the State of Ohio, and spend a few minutes among those who love righteousness and hate iniquity! One gray-haired brother said, at the close of the meeting, that he had a slight attack of bee fever a few years ago. He took GLEANINGS about two years; and this gave him sufficient acquaintance so that he introduced me to all who were present. I had quite a chat with the women, about temperance and godliness in their little town. Oh how glad I was that I did not yield to the temptation to go to bed and rest, instead of going to meeting!* I slept soundly, and awoke early in the morning to a nice breakfast prepared by special request, that I might start out on my journey by sunrise. I shall never forget the inspiration that came over me as I sped on the wings of the wind over the beautiful graveled roads of Miami and Shelby Counties. The text that father Langstroth gave me came up with wonderful vividness and beauty—"the peace of God, which passeth all understanding." Yes, indeed, nothing can express it as does that passage of scripture. I thought at the time, of only a few weeks ago, when I was feeling a little touch of the blues. At that time I prayed earnestly over the matter. This morning I felt the answer to the prayer had come; and as I was out in the country, and nobody near, it was a wonderful privilege to thank God out loud for the gift of that precious hour. And then the words of a beautiful hymn from one of the later editions of the Gospel Hymns burst in upon my understanding with a flood of glory; and I sang out loud alone by myself—no, not alone, for God's holy angels were my companions. Let me give you just a few lines of that hymn:

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* By the time the meeting closed I had forgotten all about being tired and weary; and this experience was only one of many similar ones. Is it not *Satan* who suggests so often that we are "too tired" to think of going to prayer-meeting, and that it is really a "Christian duty" to stay at home?

To him that overcomes the foe,
  White raiment shall be given;
Before the angels he shall know
  His name confessed in heaven.
Then onward from the hills of light,
  Our hearts with love aflame;
We'll vanquish all the hosts of night
  In Jesus' conquering name.
Faith is the victory! faith is the victory!
Oh glorious victory that overcomes the world!

At Berlin I found St. Michael's church—a structure that cost over $50,000. Attached to it is a tower 220 feet high. From this there is said to be a magnificent view of the whole surrounding country. As I rode up I saw a notice, "Church not open to-day." Notwithstanding this, I made an unsuccessful effort to have the rules suspended for just that time.

As I approached St. Mary's I began to see evidences that I was getting near the great oil region; and I found I was also in the vicinity of the great reservoir of Mercer Co. This is the largest artificial reservoir of water on the face of the earth; and as there is a fair roadway clear around it, I turned out of my way to travel a few miles along its shores. I found the water quite low; but yet it was a wonderful sight to see an artificial lake 10 miles long and 7 miles wide. Before reaching the reservoir I passed hundreds of oil-wells, most of them being pumped by a set of levers and connecting-rods that were both curious and wonderful to me. In order to avoid the danger of setting the gas on fire, the furnace and boiler were some little distance from any well. The steam is carried along the ground in pipes, to the engine. Then this one engine does the pumping for a large number of wells, through the connecting-rods I have mentioned. In fact, I was told that one engine had worked as many as 55 different wells, situated close together. The gas and oil go away in appropriate pipes, so that nobody comes near the greater part of the wells, perhaps for days at a time. Where oil is so plentiful, one would suppose every thing would be well lubricated; but in many localities the creaking and groaning from these walking-beams and oscillating-rods would, it seems to me, keep the people awake nights in the adjoining farmhouses.

At one point a little south of the reservoir I saw a small army of workmen laying an eight-inch gas-pipe from Indiana to Ohio. The parts were screwed together by means of a traction engine. This wonderful machine took hold of the different lengths of the great iron pipes, and screwed them up gas-tight, with a speed and precision that seemed almost like fairy-tales of old. When I asked who owned all that property, and who paid those great gangs of workmen, the answer was, "The Standard Oil Co." I was told, too, that they paid excellent wages for competent men. I followed them along with my wheel, being careful to keep out of the way, and I could not help admiring the system, skill, and excellent training that were exhibited all along the work. While the ponderous machinery was doing its work, and men were fairly jumping that there might not be any unnecessary delay where so many were awaiting the motions of the machinery, I heard no profane words and no overbearing language from the bosses of the different gangs. ▭

As I came near the great reservoir, the number of derricks kept increasing; and then down through the swamp of mud, oil, and water, where one could scarcely find a footing, except on the high banks of the reservoir, even there oil-wells are planted so thickly that one is lost in wonder and surprise. I was told afterward that at one time this seemed to be the center of the excitement in regard to oil and gas. There is also a good deal of fishing going on here with a peculiar kind of net or trap for fish. This industry goes on fully ten months in the year.

While I was wending my way along on the top of the reservoir, alone in the wilderness, except for the creaking of the pumping machinery, I began to feel thirsty. The waters of the reservoir, on account of their lowness, were, of course, not fit to drink; and those in the swamp, on the other side of the embankment, were still more forbidding on account of the oil that seemed to cover the surface of the water and every thing else. A little further along, my inquiring gaze rested on something down through the bushes in the swamp, that looked like a beautiful fountain. I at first was inclined to think my imagination had been playing me a trick, and I thought of the mirages in the desert. I stood my wheel against a log, and, like Moses, decided to stop and inquire into the strange thing. There was no myth about it. Before my eyes was the most beautiful crystal fountain that I ever saw anywhere. The beautiful sparkling water came up through an eight-inch pipe, perhaps three feet above the surface of the oily water in the swamp. Then it poured over on all sides so as to form a beautiful inverted bowl or globe, rivaling any thing ever made by glass-workers. It seemed as if it could not be real, and I pushed my finger through the sheet of water as it came down. It was deliciously cool to my touch. Then I leaned over and touched it with my lips. Surely it could not be the water from the great reservoir. It tasted so delicious I felt sure it could not be hurtful. Just at this point memory seemed to be groping backward in the past. What was it that this reminded me of? I could not tell; but I kept on drinking the delicious water. When I was finally satisfied I stopped a little and began to be sensible of a sulphury taste in my mouth, and then memory made a suggestion that made me speak out loud: "Green Springs, as sure as you live!" Just then I heard footsteps on the embankment above. Remembering my wheel standing there alone I climbed to the top, and a dialogue ensued:

"Look here, stranger, can you tell me where that beautiful water down there comes from? Surely it has no connection with this great reservoir, has it?"

"Why, bless you, no. That water comes from 2200 feet down in the bosom of the earth. They drilled a hole for oil; but instead of oil they got that spring of mineral water."

"Mineral water!" said I, remembering the great quantity I had just imbibed.

"Yes; don't you taste the sulphur? Come to think of it, it was about a minute after you took your last swallow before the taste came, was it not?"

Then I laughingly told him he had described it exactly.

No unpleasant effect followed, even if I did drink so lavishly.

Off to the northwest of the reservoir, the derricks seemed still thicker; but although the wells were all being pumped, the quantity of oil secured is nothing to what it was a year or two ago when this locality was first developed. They get gas enough usually to run the engines, sometimes supplementing it with crude oil, so that there is no expense for fuel; and one engineer not only pumps a great number of wells, but he goes away and leaves his boilers and engines for hours at a time. In fact, I saw machinery running at different points, where I could not find anybody anywhere around. They have an automatic feeding arrangement for the water, so it becomes impossible for it to get below the flues. Another automatic arrangement shuts off the gas when the steam pressure gets beyond a certain point. Sometimes one engine pumps one set of wells in the forenoon and another set in the opposite direction in the afternoon, the managers having found by experience that in this way they get just as much oil and gas as where the wells are pulled on continuously.

To be Continued.

HIGH PRESSURE GARDENING

LATHYRIS SILVESTRIS, ETC.

Perhaps some of you are wondering whether my enthusiasm was really so short-lived in regard to this plant. Well, I have been waiting to find out more about it. From what I had read in regard to it, I confess I expected it to make a little better headway during the severe drouth; but perhaps I should have waited until my plants were older and better established. They grew some all through the drouth; but since the abundant rains they have been doing wonderfully. They are now so much crowded in the seed-bed they ought to be planted out in the field; but I am afraid they would hardly make root enough to stand the frosts of winter; therefore I propose to let them stand in the seed-bed unprotected, and then put them out in the field in the spring. I shall watch the plants with much interest, to see how they stand up under zero freezes. By the way, is anybody going to be able to furnish us one-year-old plants next spring? Several new forage-plants are coming forward, and I am watching scarlet clover, that has been sown at different dates during the fall, with much anxiety as to how it will stand the winter.

OUR POTATO CROP FOR 1894.

Well, we have not dug them all; but a quarter-acre the boys dug and put into the cellar while I was off on my wheel gave a little over 80 bushels. Considering the season, I feel pretty well satisfied with the result, especially since visiting Chamberlain, Terry, and Wilbur Fenn. Not one of them has succeeded in getting any thing near the yield, neither did any of them ever put the quantity of stable manure on to so small a piece of ground as I used. Well, I have received good pay for my manure. The potatoes were Early Puritan and Lee's Favorite. By the way, I wonder if it is generally known that some varieties are much more given to scab than others. The Early Ohio, for instance, is terrible in this respect. Cousin Fenn says he has always found it so; but the Rural New-Yorker No. 2 is very seldom scabby, even when other potatoes on the same ground are badly affected. Well, the Puritans are almost clean and perfect; but Lee's Favorite are scabbed quite badly. One row of Rural New-Yorkers, right through the middle of the field, is also almost entirely clean. To be honest, there is one other thing I ought to say about getting this big crop during such a poor season. I planted whole potatoes, and many pretty good-sized ones at that. I think I mentioned before that these potatoes were cultivated only twice, and never hoed at all—at least, I do not remember that they were ever hoed; but we went over the ground with a smoothing-harrow before they were up, once just as they were coming up, and another time when they were so high that it seemed as if it would tear them all to pieces. Before planting them we turned under a heavy growth of clover and timothy, after covering the ground with manure besides.

FREEMAN POTATOES.

I planted one barrel of Freeman potatoes, a few being frosted, which I got from you last spring. After one of the dryest seasons ever known in this section I harvested 109½ bushels of nice potatoes. I also planted some American Wonder, which are still better.

C. D. SWEATLAND.

Fredericktown, O., Sept. 2.

AMERICAN PEARL ONIONS, ETC.

The American Pearl has wintered through with a loss of about ten per cent, and I consider them to be next to the Evergreen in hardiness and standing the weather. In an ordinary winter I do not think there would be a loss of one per cent. Silver Kings, planted the same time, all winter-killed. I have tried English Multipliers, potato and white-top set onions, and I found it cost too much to grow the seed to make any profit from growing them. In the future I will plant only the Pearl and Prizetakers. Both are first-class, A No. 1.

EUGENE DAVIS.

Grand Rapids, Mich., Apr. 30.

A VALUABLE HINT IN REGARD TO MULTIPLIER ONIONS.

We clip the following from the *Practical Farmer:*

HOW WE GROW WHITE MULTIPLIER ONIONS.

We plant the onions in rows 8 inches apart, and 2 inches apart in the rows, in September and cover lightly over winter. By the middle of March they will be 2 or 3 inches high, and about as thick as a lead pencil, with a big bunch of roots. Then we dig them, knock off the dirt, divide the plants, and set them singly, in rows 14 inches apart, 4 inches apart in the row. Every onion will make a good large salable bulb. We thus gain a year's time, and grow large bulbs instead of small ones that are fit only for pickles. We can use ours for bunching very early.

MINNIE UTTERAGE.

Evansville, Ind.

From what experience I have had with the White Multipliers during the past year, I feel sure that the above will prove to be a valuable suggestion. I tried planting a few in our greenhouse, and they soon divided up, making a large number of onion-plants from a single onion. These were then planted out in the open air, and they made good-sized onions. In this way one could increase the stock very rapidly.

SPECIAL NOTICES FROM BUSINESS MANAGER

PRESENT PRICES ON ONION-SETS, POTATOES, ETC.

Until further notice, the price of onion-sets and potatoes will be as below. Price of onion-sets here given are to be taken instead of those in our catalog.

Yellow Danvers, quart, 15c; peck, $1.00; bushel, $3.00. Prizetaker, quart, 25c; peck, $1.50; bushel, $5.00. American Extra Early Pearl, quart, 30c; peck, $1.75; bushel, $6.00. New White Multiplier, quart, 15c; peck, $1.00; bushel, $3.50. Yellow English Multipliers or Potato onions, quart, 10c; peck, 50c; bushel, $1.75. On Egyptian Winter onion our prices are already away below those of any other seedsman we know of.

White Victoria onions, same price as Prizetaker.

All of above onion-sets half-price where they run larger than one inch in diameter; 10c per quart extra when sent by mail.

PRICES ON POTATOES FOR SEED THIS FALL.

Until further notice we offer potatoes for next year's planting at the following low prices. As heretofore the prices will probably be much higher next spring. Of course, orders this fall should be sent in before there is danger from frost. To be perfectly safe, it had better be before Nov. 1.

Price of Early Ohio, Early Puritan, Lee's Favorite, and Rural New Yorker potatoes: Peck, 35c; ½ bush , 60c; bushel, $1; one bbl. of 11 pecks, $2.50.

Freeman potatoes, one peck, 40c; ½ bush., 75c; 1 bushel, $1.25; one bbl. of 11 pecks, $3.00.

One pound of any of above by mail, 20c; 3 lbs., 45c.

Any of the above potatoes, second size, half the above prices.

STRAWBERRY-PLANTS.

In addition to those mentioned in the catalog, we can furnish Michel's Early and Timbrell. Michel's Early, so far as our experience goes, up to the present time, is the earliest berry that bears enough to be profitable. It is also an excellent fertilizer. Price as per catalog. The Timbrell, at present writing, would be, perhaps, the leading strawberry were it not for the fact that it does not color up as well, especially at the tip, as some others when fully ripe.

Price of Timbrell, 25c for 10 plants; $2.00 per 100; $15.00 per 1000.

NEW LIST OF PRICES ON HIVES.

A good many customers, in buying complete hives, have been disappointed in not finding, among the material sent, nails to put the hives together; while others have expected also foundation-starters for the frames as well as for the sections; and this, notwithstanding the fact that our list plainly states that neither nails nor starters for brood-frames are included with any of our hives at the prices quoted. There are good reasons why complete hives should include both these items. The required nails to put up all hives shipped in the flat must be supplied, and very few have the necessary kinds and sizes, except as they buy them, and very often they can not be had in your hardware store. As we buy them in large quantities, and from long experience know what sizes and kinds are best suited to the various parts of the hive, it seems most appropriate that we include nails with all hives sent out.

With regard to foundation-starters for the brood-frames, the case is not quite as clear; and yet there are more reasons for including than for leaving them out. Very many use full sheets of foundation; and, to do this, would have to order an extra supply; but the same can be said of starters for sections. Probably more use full sheets in sections than in brood-frames, while we furnish sufficient for only a one-inch starter, and that is all we propose to include for the brood-frames. In either case, the foundation is sent in full sheets, to be so used if desired, or to be cut up into starters if the purchaser does not use any more than we send. Very many, especially beginners who do not appreciate the value of comb foundation enough to order it separately, would be led to use it, and to find out what a help it is in securing straight even combs, and learn the many other advantages gained from its use.

The addition of nails and foundation-starters for frames requires a revision of prices. In making the new list of prices we have made a few other changes. The sale of hives with T supers has been so small that we deem it best to drop them out of the list. These hives were numbered 3 and 4, and 13 and 14. We have applied these same numbers to the hives we have been listing as Nos. 8, 9, 18, and 19, so as to have the hives numbered consecutively. We are also, for the first time, offering the hives for extracted honey furnished in two ways, similar to the comb-honey hives. For instance, Nos. 3, 4, and 5, 13, 14, and 15, will include, besides frames and division-boards, as formerly, nails, foundation-starters for frames above and below, and a queen-excluding honey-board; while the same numbers, with E affixed, will omit the foundation-starters and honey-boards.

All Dovetailed chaff hives at list price include the telescope cover, because it is scarcely a satisfactory wintering hive without it. Those desiring the flat or gable cover instead, can have either at a reduction of 25 cts. per hive, as will be seen by the table. We will change our method of packing, so that dealers who keep our hives will not have to keep so large a variety. Extra supers with furniture will be put up in packages by themselves. If you do not know what proportion of 1½ and 2 story hives to order, we pack them all as 1½ story; and what 2-story you want are made by extra supers with furniture. If, for instance, you want 500 hives, 300 1½-story, or No. 1, and 200 2 story, or No. 2, we ship 500 No. 1 with 200 extra supers complete packed in 5 and 10 lots. Then if your sales of No. 1 should overrun 300, you will have no repacking to do, and you can, if you wish, sell extra supers to those who have bought 1½-story hives, and desire later to make them 2-story.

DESCRIPTIVE LIST OF DOVETAILED HIVES.

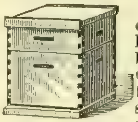


FIG. 74.

No. 1 Dovetailed hive, 8-frame, complete, a 1½-story hive for comb honey, as shown, Fig. 74, includes bottom-board and cover; a body with eight improved Hoffman thick-top frames and plain division-board; one super with a follower and wedge; 6 section-holders with slotted separators, sections, and foundation starters for frames and sections, and nails.

No. 1E is the same hive leaving out sections and starters; everything else mentioned is included.

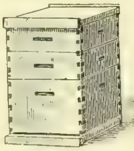


FIG. 75.

No. 2 Dovetailed hive, 8-frame complete, includes a bottom and cover, a body with 8 Hoffman thick-top frames, division-board, 2 supers with followers and wedges, 12 section-holders, with sections, separators, and foundation-starters for frames and sections; also nails; making a 2-story hive for comb honey, as shown, Fig. 75.

No. 2E is No. 2. with sections and starters omitted.

No. 3 Dovetailed hive, 8-frame complete, a 1½-story hive for extracted honey, as shown in Fig. 74, includes bottom, cover, and body, with 8 Hoffman full-depth frames and division-board; 1 super with 8 shallow Hoffman frames and follower, including nails, foundation-starters for both sets of frames, and No. 13 zinc honey-board.

No. 3E is the same hive leaving out foundation-starters and honey-board.

No. 4 is a 2-story hive, furnished like No. 3, with one more super and contents added to each hive, as shown in Fig. 75.

No. 4E is the same as No. 4, leaving out starters and honey-board.

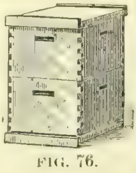


FIG. 76.

No. 5 Dovetailed hive, 8-frame, complete, is a 2-story hive for extractor, and includes bottom and cover, two bodies with 16 Hoffman frames and two division-boards; nails, foundation-starters for frames, and No. 13 zinc honey-board.

No. 5E is the same as No. 5, with starters and honey-board omitted.

No. 6 is the same as No. 1 except that it has 4 D cases with 24 sections and starters for same (no separators) instead of section-holders.

No. 6E is No. 6 with sections and starters omitted.

No. 7 is the same as No. 6, except that it has 8 D cases complete, and one extra super.

No. 7E is No. 7 with sections and starters omitted.

PRICE LIST OF DOVETAILED HIVES.

Order by number and carry out the price.

Number and Name.	[Nailed and Painted each.	In flat. 1	In flat. 10	W'ght of 10.
No. 1 Dov. hive complete	1.70	1.30	12.00	280 lbs.
No. 1E " " empty...	1.40	1 10	10.00	270 "
No. 2 " " complete	2.30	1.70	16.00	350 "
No. 2E " " empty...	1 80	1.35	12.50	330 "
No. 3 " " complete	1.60	1.30	12.00	270 "
No. 3E " " empty...	1.40	1.10	10.00	260 "
No. 4 " " complete	2.10	1 60	15.00	340 "
No. 4E " " empty...	1.80	1.35	12.50	320 "
No. 5 " " complete	2.00	1.50	14.00	340 "
No. 5E " " empty .	1.65	1.25	11.50	320 "
No. 6 " " complete	1.70	1.30	12.00	280 "
No. 6E " " empty...	1.40	1 10	10.00	270 "
No. 7 " " complete	2.30	1.70	16.00	350 "
No. 7E " " empty...	1.80	1.35	12.50	330 "

Write for prices on larger quantities.

Five hives furnished at the same rate as ten.

Any of above hives furnished with frames pierced, and wire included without extra charge *if so ordered.* If wanted, add P. W. to the number in ordering.

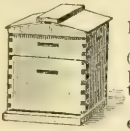


FIG. 77.

Honey-boards may be added at price in table of honey-boards.

Hives furnished with gable covers (Fig. 77) instead of flat cover same price *if so ordered.* If wanted, add G to the number in ordering.

Hives with tinned covers, 5c each extra. We can not recommend them. The tin ordered separately, 10c each.

We will make the Dovetailed hive 10-frame instead of 8-frame, in any of the above numbers, as follows:

Nailed and painted, complete, 30c each extra.
In flat, complete, 25c each extra.
In flat, empty, 20c per hive extra.

PRICE LIST OF 8-FRAME DOV. HIVE PARTS.

Name and Description.	[Nailed & painted, one	In flat. one	In flat. 10	Weig't of 10.
Bottom-board..................	.15	.10	1.00	45 lbs.
Cover, flat or gable............	20	15	1.50	40 lbs.
Body, empty, with rabbets...	.40	30	2.50	80 lbs.
Body, frames and div. board..	.65	.55	5.00	120 lbs.
Body with frames, starters, and division-board	.75	.60	5.50	125 lbs.
Super with flat tins only......	.20	.15	1.20	40 lbs.
No. 2E, 4E, or 7E, super, empty	40	.30	2 50	60 lbs.
No. 2 or No. 7, super complete	.60	.45	4.0	75 lbs.
No. 4 super comp. with start's	.50	.35	3.00	60 lbs.
Body with frs. filled with fdn.	1 50	1.30	12.00	130 lbs.
No. 4 super with frames filled with foundation..........	.80	.70	6.50	65 lbs.
No. 2 or 7 super with sections filled with foundation.....	.75	.60.	5 50	80 lbs.

No. 2E super includes section-holders, separators, follower and wedge, and No. 2 the same with sections and starters added.

No. 4E super includes shallow Hoff. frames, with follower; and No. 4 the same with starters added.

No. 7E super includes D. cases, and No. 7 the same with sections and starters.

Nails included with all parts of hives, as well as with complete hives.

Ten-frame-hive parts advance 20 per cent.

DOVETAILED CHAFF HIVE.

DESCRIPTIVE LIST OF DOV. CHAFF HIVE.

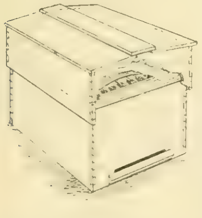


FIG. 79.

No. 11 Dov. chaff hive, 8-fr. complete, as shown Fig. 79. is a 1½-story hive for comb honey, with body and telescope cover and super cover, 8 Hoffman frames and division-board, one super with follower and wedge, 6 section-holders, 5 slotted separators, sections, foundation starters for frames and sections, and nails.

No. 11E is No. 11 with sections and starters omitted.

No. 12 Dov. chaff hive is No. 11 with another super (No. 2) added.

No. 12E is No. 12 with sections and starters omitted.

No. 13 Dov. chaff hive is a 1½-story hive for extractor shown Fig. 79. It includes 8 full-depth Hoffman frames and division-board; a super with 8 shallow Hoffman frames and follower; starters for both sets of frames, No. 13 zinc honey-board, and nails.

No. 13E is No. 13 with fdn. starters and honey-board omitted.

No. 14 Dov. chaff hive is No. 13 with another super (No. 4) added.

No. 14E is No. 14 with starters and honey-board omitted.

No. 15 Dov. chaff hive, 8-frame complete, is a 2-story hive for extractor, with Dov. body for upper story; 16 Hoffman frames, 2 division-boards, fdn. starters, and No. 13 zinc honey-board, and nails.

No. 15E is No. 15 with fdn. starters and honey-board omitted.

No. 16 Dov. chaff hive is same as No. 11, with four D. cases for super instead of section-holders, and with sections, starters, and nails, but no separators.

No. 16E is No. 16 with sections and starters omitted.

No. 17 Dov. chaff hive is No. 16 with another super (No. 7) added.

No. 17E is No. 17 with sections and starters omitted.

PRICE LIST OF DOVETAILED CHAFF HIVES.

Order by number and carry out the price.

Number and Name.	[Nailed & painted, one	In flat. one	In flat. 10	Weight of 10.
No. 11 Dov. chaff hive, comp..	2.70	2.00	18.00	360 lbs.
No. 11E " " " empty	2.40	1.80	16.00	350 lbs.
No. 12 " " " comp.	3.30	2.40	22.00	430 lbs.
No. 12E " " " empty	2.80	2.05	18.50	410 lbs.
No. 13 " " " comp.	2.60	2 00	18.00	350 lbs.
No. 13E " " " empty	2.40	1.80	16.00	340 lbs.
No. 14 " " " comp.	3.10	2.30	21.00	420 lbs.
No. 14E " " " empty	2.80	2.05	18.50	400 lbs.
No. 15 " " " comp.	3.00	2.20	20.00	420 lbs.
No. 15E " " " empty	2.65	1.95	17.50	400 lbs.
No. 16 " " " comp.	2.70	2.00	18.00	360 lbs.
No. 16E " " " empty	2.40	1.80	16.00	350 lbs.
No. 17 " " " comp.	3.30	2.40	22.00	430 lbs.
No. 17E " " " empty	2.80	2.05	18.50	410 lbs.

Five hives furnished at the same rate as ten.

Any above numbers with flat or gable cover, instead of telescope and super cover, 25 cents per hive *less*, when so ordered.

Telescope covers are so large that the addition of tin will cost 10c each. The tin ordered separately, 20c each cover.

Ten-frame hives are furnished at an advance of
40c per hive, nailed and painted, complete.
30c per hive, in flat, complete.
25c per hive, in flat, empty.

PRICE LIST OF DOV. CHAFF-HIVE PARTS.

Name and description.	[Nailed and painted, one	In flat. one	In flat. 10	Weight of 10.
Dovetailed telescope cover.....	.45	.35	3.00	90 lbs.
Super cover, tin bound.........		.10	1.00	10 lbs.
Dov. chaff hive, body only......	1.20	.80	7.00	200 lbs.
Outside body, or winter case..	.40	.30	3.00	70 lbs.
Rims for Dov. chaff hive.......		.12	1.00	20 lbs.
Inside body and bottom		.25	2.00	50 lbs.
Outside bottom & tarred paper.		.13	1.00	40 lbs.

Ten-frame-hive parts, 20 per cent advance.

You will observe that the Dovetailed chaff hives are furnished in all the same combinations as the Dovetailed hive, and the numbers are the same with 10 added. The extra price is $1.00 on each hive nailed, painted, and stuffed with chaff; 70c on each hive in the flat, and 60c each extra in lots of ten. You will notice that this difference in price is made in the hive body and cover; the super and all inside fixtures being the same throughout each list of hives.

On hives with two supers the telescope cover does not reach down to the rim by 3 inches. We will furnish extra-deep telescope covers, 4 inches deeper, at 10 cts. each extra, if any prefer.

CHAS. ISRAEL & BROS., 110 Hudson St., N. Y.

WHOLESALE DEALERS & COMMISSION MERCHANTS. Established 1875.

HONEY —AND— BEESWAX.

LIBERAL ADVANCES MADE ON CONSIGNMENTS.

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds
W. Atlee Burpee & Co., Philadelphia, Pa.

Peach Trees

All the well-known varieties, including Champion and Crosby. By mail, 10, 60c; by freight or express, 100, $4.00.

JAPAN PLUMS.

Abondance, Burbank, and Satsuma. By mail, 5, 60c; by freight or express, 100. $10.00.

CEDAR CROVE FARM,
JOHN CADWALLADER, Proprietor,
North Madison, Ind.

By permission, I refer to the First National Bank, Madison, Ind., A. I. Root, Medina, O.

John Cadwallader, Dear Sir:—I received those trees to-day. Was very well pleased with them. I thought them very nice trees. They were in good condition. JOHN B. PIERCE,
Boston P. O., Alle. Co., Pa.

Claremont, Va., Sept. 10, 1894.
Dear Sir:—I bought a few trees of you last spring, and as they have done all right I should like a few more this fall. Please quote me prices on trees by mail, as it is too far to ship any other way.
Yours truly, A. F. AMES.

Feagaville, Md., April 30, 1894.
Mr. Cadwallader, Dear Sir:—Since sending the postal of Saturday the trees have come to hand in good condition, except the tops somewhat broken; they have fine roots, and I am much pleased with them. Many thanks. Resp'y, MRS. C. E. DERR.

PATENTS

Careful attention given to the prosecution of business before the U. S. Patent Office. All business treated as *strictly confidential.* No charge made for services in prosecuting application, until the patent is allowed. Send for "INVENTOR'S GUIDE."

FRANKLIN H. HOUGH,
925 F STREET, WASHINGTON, D. C,

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO

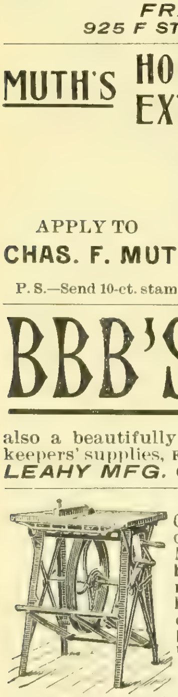
CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

BBB'S!

If you keep ***BEES,*** subscribe for the **Progressive Bee-keeper,** a journal devoted to Bees, Honey, and kindred industries. ***50 cts. per year.*** Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address

LEAHY MFG. CO., HIGGINSVILLE, MO.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.

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Every Farmer

Ought to read the Rural New-Yorker.

(Published weekly.)

It is the business farmer's paper, and a most reliable authority on agricultural and horticultural subjects. Frauds and humbugs fear it. ONLY $1 A YEAR. Send for sample copy to

THE RURAL NEW-YORKER, New York.

We have made arrangements so that we can send it and GLEANINGS for $1.75 a year.

Please mention this paper.

Mother Bees.

If you wish the best of queens, or mother bees, send me your orders. Untested queens, 3 or 5 band, 75c each; $4.25 for 6, or $8.00 per dozen. Tested 3-band queens, $1.50 each; fine 3-band breeders, thoroughly tested, the ***best,*** $5.00 each; straight 5-band breeders, faultless queens, $10.00 each. Root's goods, Dadant's foundation, and Bingham smokers.

Jennie Atchley, Beeville, Bee Co., Tex.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,
12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

☞ **In responding to this advertisement mention GLEANINGS.**

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis.

SECOND-HAND TYPE.

We offer for sale the samples of job type shown below. It is practically as good as new.

BUCKEYE LOCK
Great Primer Concave, 12 A, $1.50.

Pica Fashion.
Great Primer Fashion, 8A, 10a, $2.50.

Large Type.
Dbl. Small Pica Fashion, 5A, 9a, $3.00.

This TYPE for Sale. L. P.
Long Primer Fashion, 15A, 23a, $2.00.

This is a Pretty Face
Pica Condensed Fashion, 18A, 22a, $2.00.

PICA GLIPTIC. 1234567890
Pica Glyptic, 31A, $2.75.

AAAAAAAAAAAAAAAAAAAABB BB
Pica Condensed Concave, 21A, $1.25.

This is Extended
Nonp Antique, 20A, 36a, $1.50.

HENRY E. BLISS
Long Primer Concave, 20A, $1.00.

THIS IS A PEARL LETTER
Pearl Gothic, 40A, $1.00.

A. I. ROOT, Medina, Ohio.

PATENTS

Careful attention given to the prosecution of business before the U. S. Patent Office. All business treated as *strictly confidential*. No charge made for services in prosecuting application, until the patent is allowed. Send for "INVENTOR'S GUIDE."

FRANKLIN H. HOUGH.
925 F STREET, WASHINGTON, D. C.

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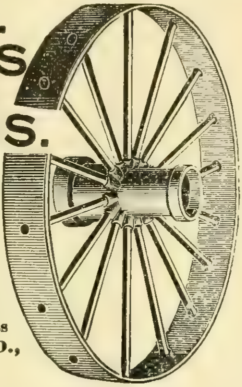
Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping-point in the Country.** Dealers in Honey and Beeswax Catalog free.

WALTER S. POUDER,
162 Massachusetts Ave., Indianapolis, Ind.

Please mention this paper.

METAL WHEELS for your WAGONS.



Any size you want, 20 to 56 in. high. Tires 1 to 8 in wide—hubs to fit any axle. Saves Cost many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires. Catl'g free. Address

EMPIRE MFG. CO.,
Quincy, Ill.

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EDWIN ROBINSON. W. M. GRAY.

ESTABLISHED 1866.

Robinson & Gray,

SUCCESSORS TO

B. F. Southwick & Co.,

Foreign and Domestic Fruits, Canned Goods.

47 & 48 South Market and 5 & 6 Chatham Streets.

Headquarters for Vermont Shipments of White-Clover Honey.

It will be the endeavor of the new firm to meet the wishes of their patrons in the future as the late firm has in the past.

Thanking you for the many past favors received by the late firm, we hope to be favored with a liberal share of your patronage in the future.

All orders and inquiries by mail or otherwise will receive prompt attention. Very respectfully,

Boston, April 2, 1894. ROBINSON & GRAY.

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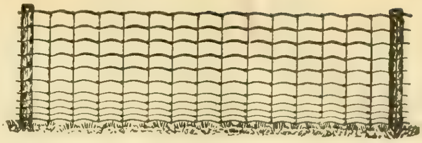

"IS THIS HOT ENOUGH FOR YOU?"

Asked pert Miss Jersey of gruff old Mr Durham. "No, it is not," answered he, "I have been hoping to see that 'blamed' Coiled Spring fence wilt down as other wire fences always do. "You never will experience that degree of heat until you reach the rendering tank, where the 'Chicago dairy-maids' wrongfully assist your sex to compete with ours in the production of gilt-edged Jersey butter." That heifer believes in **good fences** and **pure butter.**

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

Bees and Supplies

Always on hand. Send for circular.

I. J. Stringham, 105 Park Place, N. Y.

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MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

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CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

BBB'S!

If you keep *BEES*, subscribe for the **Progressive Bee-keeper**, a journal devoted to Bees, Honey, and kindred industries. ***50 cts. per year.*** Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address

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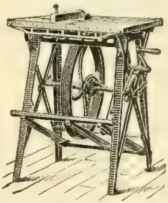

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When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.

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DOVETAILED HIVES, SIMPLICITY HIVES,
SECTIONS, EXTRACTORS, ETC.
FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb
J. M. JENKINS, WETUMPKA, ALABAMA.

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HONEY COLUMN.

CITY MARKETS.

Kansas City.—*Honey.*—Comb and extracted honey in good demand. White 1-lb. comb, 16; amber, 14; dark, 12. Extracted, white, 7; amber, 6; dark, 4½@5. Beeswax, 22.

Hamblin & Bearss,
Oct. 8. Kansas City, Mo.

Chicago.—*Honey.*—Honey that is white and in good condition brings 15c per lb., and sales are of fair proportions; that which does not grade as fine sells more slowly. Receipts are quite liberal from sections that have had fair to good yields. Extracted sells at 5, 6, and 7 cts. Beeswax brings 27@28c; very little of it on the market. Prices are quite firm, for there is a general impression that there is a limited supply. R. A. Burnett & Co.,
Oct. 8. 163 So. Water St., Chicago, Ill.

Buffalo.—*Honey.*—The demand in market for fancy No. 1-lb. combs has increased considerably, and 13@14c continues the prevailing price. seconds and thirds selling from 10 downward. It is impossible to more closely quote than this. Those desiring to test the market should send a sample shipment and see what it will do. We quickly sell and remit, showing you just what has been done, thus enabling you to judge whether it is policy to continue or not. We will advance 10c per lb. on any quantity of strictly fancy, possibly a little more in some instances. Batterson & Co.,
Oct. 8. Buffalo, N. Y.

Detroit.—*Honey.*—Best white comb honey in good demand at 14@15; dark, 11@13 Extracted, 6½@7. Beeswax, 24@25. M. H Hunt,
Oct. 8. Bell Branch, Mich.

Cincinnati.—*Honey*—Demand is fair for extracted honey at 4@7. There is a good demand for comb honey at 14@15c a lb. in the jobbing way for choice white. Beeswax in good demand at 22@27c a lb. for good to choice yellow.

Chas. F. Muth & Son.
Oct. 9. Cincinnati, O.

St. Louis.—*Honey.*—Market fairly active; more inquiries. We quote comb. 10@13; extracted, in barrels, 3¾@4½; in cans, 5½@6¼ Prime beeswax, 26. D. G. Tutt Grocer Co.,
Oct. 8. St. Louis, Mo.

Cleveland.—*Honey.*—Our honey market is very active, and we are placing No. 1 white-clover at 16½@17c; No. 2, 14. Extracted, white, 8. Old stock is cleaned out of the market, and as cold weather approaches parties are inquiring for the new. Beeswax, 25. Williams Bros.,
Oct. 8. 80 & 82 Broadway, Cleveland, O.

Kansas City.—*Honey.*—The receipts of comb are fair, and the demand is fair. Receipts of extracted are light. We quote 1-lb. comb, No. 1 white, 15; No. 2, 14; No. 1 amber, 13; No. 2, 10@12. Extracted, 5@7. Beeswax, 22@25. C. C. Clemons & Co.,
Oct. 10. Kansas City, Mo.

Milwaukee.—*Honey.*—This market is now all right for new crop honey; the old crop is all out of sight, and the choice new 1-lb. sections sell readily at 15@16. Extracted white, choice, 6½@7½. Ship us your honey now. Beeswax, 25.

A. V. Bishop & Co.,
Oct. 4. Milwaukee, Wis.

Boston.—*Honey.*—Our market continues steady at 14@15c for comb honey, with good supply and light demand. Very little inquiry after extracted honey; prices same as last—5@6.

E. E. Blake & Co.,
Oct. 9. Boston, Mass.

Albany.—*Honey.* We have received up to date about 1000 cases of comb honey, and nearly 100 packages of extracted. This is almost exactly the same as receipts last season up to same date. Prices also range about the same as last year. White clover, 13@15c; No. 2, 12@13; mixed and buckwheat, 10@11c. Very fancy stock will exceed these prices. Extracted moving slowly at 6@7c. There is demand for clover put up in small glass jars.

Chas. McCulloch & Co.,
Oct. 11. Albany, N. Y.

Philadelphia.—*Honey.*—Honey is about 12@14c in this market. Good yellow wax, 24@26; ready sale.

Shoemaker & McElroy,
Oct. 8. 30 So. Water St., Philadelphia, Pa.

For Sale.—5 kegs buckwheat, 3 kegs amber extracted honey; kegs hold about 150 lbs. each. Honey well ripened. J. I. Parent.
Birchton, Saratoga Co., N. Y.

For Sale.—Ten tons of choice basswood extracted honey in barrels, about 325 lbs. each. Price 7c; 5 per cent off on ton lots. Frank McNay,
Mauston, Wis.

For Sale.—1000 lbs. of extracted honey on board cars 6c per lb.; splendid flavor.
W. S. Douglass, Lexington, Lee Co., Tex.

For Sale.—1000 lbs. of bitter honey, splendid for feeding bees, 4c per lb. on board the cars.
W. S. Douglass, Lexington, Lee Co., Tex.

Linn honey, extracted, in 50-lb. pails, 7c per lb.; in 300 to 500 lb. bbls., 6½c. per lb. Comb honey, 1-lb. boxes, 24 in a case, 16c per lb. f. o. b. cars here. The above honey is strictly No. 1. J. B. Murray,
Ada, O.

For Sale.—Eight tons fine extracted honey, put up in square 60-lb. cans, two in case, at 5½ and 6 cts. Five or more cases, ½c less. F O. B. here.
J. B. Case, Port Orange, Fla.

For Sale.—10,000 lbs. extra nice honey gathered from smartweed and other autumn flowers about one-half comb and one-half extracted.
eitf Jno. A. Thornton, Lima, Ill.

For Sale.—1000 lbs. of buckwheat comb honey.
20-21 D. F. Lashier, Hooper, Broome Co., N. Y.

For Sale.—Choice alfalfa honey in 60-lb. square cans. Prices to suit the hard times.
Charles Adams, Greeley, Col.

For Sale.—About 15 cans of honey, clover and basswood mixed. Will take 7c for it.
1t H. Van Vranken, Union City, Mich.

Wanted.—Large quantity light amber-colored honey in bulk, containing mostly clover and fruit-bloom, but must not have any sage, buckwheat, or basswood. Mail sample with price to
1t Wm. A. Selser, Wyncote, Pa.

A carload of fine extracted alfalfa honey, well ripened, in 60-lb. square cans, at 6c, f. o. b. cars here. Small lots, 7c. Samples by mail.
Aikin Bros., Loveland, Col.

Extracted honey in 60-lb. cans at 7 cents.
M. Isbell, Norwich, N. Y.

Having secured a fine quantity of buckwheat extracted honey I now offer it in lots to suit purchaser, 210-lb. kegs at 6½c f. o. b.; also 2000 lbs. of basswood and clover. W. Lamar Coggshall,
eitf West Groton, Tompkins Co., N. Y.

Wanted.—To buy quantity lots of white comb and dark extracted honey.
B. Walker, Evart, Mich.

For Sale.—Choice white-clover comb honey, 14c; other grades less. A. P. Lawrence,
16-23ei Hickory Corners, Barry Co., Mich.

Comb and extracted honey wanted, in large or small lots. Consignments solicited. Reference, A. I. Root, or Union National Bank, Denver.
eitf R. K. & J. C. Frisbee, Denver, Col.

For Sale.—7000 lbs. of fine, ripe, extracted basswood honey, highest offer takes it. Also Italian Bees and Fox-hound pups.
eift Elias Fox, Hillsboro, Wis.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

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BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.
8tfdb PAGE & KEITH,
New London, Wis.

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Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds
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Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange supplies and other goods for honey. O. H. HYATT, Shenandoah, Iowa. 20tf

WANTED.—A situation to work in a supply factory the coming winter. Write at once. Ref. given. RUSSELL T. STINNETT, West Groton, N. Y.

WANTED.—To exchange mountain ash and evergreen trees, for bee-veil and medium comb foundation. M. L. WILLIAMS, Nimrod, Minn.

WANTED.—To exchange extracted honey, for a 12-in. foundation-mill.
I. J. STRINGHAM, 105 Park Place, New York City.

WANTED.—To exchange a Noxal 200-egg incubator, used 3 settings, at $15, comb foundation at market price, and extracted honey at 8c, for honey boards, supers, and brood-frames, cut to order.
R. C. AIKIN, Loveland, Col.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange good country store (stocked) and P.O., with 8 first-class living-rooms annexed, 50 colonies bees, good honey-house and barn, for village property of some kind.
A. CARTER, Walton, Mich.

WANTED.—To exchange Given foundation-press, "L." frame, or Lamb knitting-machine, for screw-cutting lathe.
L. HEINE, Bellmore, Queens Co., N. Y.

WANTED.—To exchange leading photo. studio in flourishing city of 10,000, for apiary in Florida, bees, or desirable southeastern Florida property. Correspondence solicited.
CORELL & SON, Titusville, Pa.

SPECIAL NOTICES FROM BUSINESS MANAGER

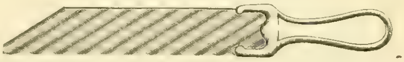
GRAND RAPIDS LETTUCE SEED FOR GREENHOUSES AND COLD-FRAMES.

We have just received a nice lot of the above seed from the originator, Eugene Davis. It costs us, however, almost four times as much as some Grand Rapids lettuce seed bought of one of the large seed-growers. We have not had an opportunity, however, of deciding which kind is best. That from friend Davis we can not sell for less than 20 cts. per ounce, or $2.50 per lb. You can have the other for 5 cts. per oz., or 60 cts. per lb. I do wish our experiment stations would help us to decide whether we had better purchase the high-priced seed, when seedsmen offer us two different kinds, as in the above. We are going to sow some of each, and carefully note the difference—if any.

THE GAULT RASPBERRY.

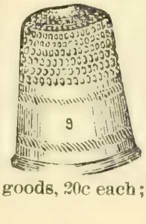
So many are asking for plants this fall, I have consulted friend Gault particularly in regard to the matter. Is it advisable to set out this raspberry in the fall? He says, decidedly not, in northern localities. Further south, where there is no danger of their being heaved out by frost, it will probably be all right. Of course, the plants may be mulched; and in the hands of one who understands the matter, and in particular soils, it may be a success. We now have a very large stock of finely rooted plants, and you may have them this fall, if you are willing to take you chances, with the above explanation. The price is 50 cts. each, or $5.00 per dozen. We are not at liberty to make any better prices than the above—that is, I have promised friend Gault that I would not. I am, however, at liberty to make the following offer to our subscribers: Any one who sends a dollar for GLEANINGS, besides paying up back dues, may have one Gault raspberry-plant for 25 cts.; or if any old subscriber, after paying up back dues, will subscribe himself, and send us one new subscription, he may have a plant free of charge; and it will be shipped any time you order it, either spring or fall. We are now (Oct. 8.) gathering clusters of jet-black raspberries, larger than any thing we ever saw in the shape of a raspberry, and, I think, more delicious. There is not a very big yield on our rich ground, but enough to show the possibilities of so short a time, for our young plants were planted in the spring.

CORRUGATED BREAD-KNIFE.



I presume all who have tried it agree that, for cutting bread, especially fresh bread and cake, nothing is equal to a knife with corrugated (or saw-tooth) edge. The Christy and Clauss knives have had a large sale. Both of these have a straight blade with corrugated edge, and it is not so easily sharpened as a straight edge. The knife we offer overcomes this difficulty and still retains the corrugated edge. Because the blade is corrugated when it is ground with a straight bevel on one side, it makes the cutting edge corrugated, and accomplishes the desired result. We are also able to offer these knives for less than the others. We will give one free for one new subscriber to GLEANINGS, with $1.00, and 5 cts. to pay postage, and you may offer the rest of this year free to the new subscriber. If you send your own renewal also, you may omit the 5 cts. postage, and we will send you also postpaid

AN ALUMINUM THIMBLE.



This is something that will not rust or tarnish. It is so light you would not know it was on your finger by its weight. It is very tough, and will wear almost indefinitely. Nothing could be more desirable to give to wife or daughter, or your best girl. We will sell the thimble at 6c postpaid, or 5c with other goods, 50c per dozen. The bread-knife at 25c postpaid; or with other goods, 20c each; $2.00 per dozen.

The 50-cent Queens

Are all sold, but I can still furnish tested queens of this year's rearing at $1.00 each. One queen and the REVIEW from now until the end of 1895 for $1.75.
W. Z. HUTCHINSON, Flint, Mich.

FOR SALE.

"Elmwood"—Improved farm of 60 acres on macadamized road, 2¼ miles from center of city of Raleigh, N. C., population 16,000. Land well adapted to poultry, bees, fruit, and truck. Will sell whole or one-half interest to a practical poultry and fruit man. Price only $30 per acre, one-half cash. Rare bargain and chance for a good man. Enclose stamp for reply. Address

GERALD McCARTHY,
Secretary N. C. Horticultural Society,
Raleigh, N. C.

Mother Bees.

If you wish the best of queens, or mother bees, send me your orders. Untested queens, 3 or 5 band, 75c each; $4.25 for 6, or $8.00 per dozen. Tested 3-band queens, $1.50 each; fine 3-band breeders, thoroughly tested, the *best,* $5.00 each; straight 5-band breeders, faultless queens, $10.00 each. Root's goods, Dadant's foundation, and Bingham smokers.

Jennie Atchley, Beeville, Bee Co., Tex.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

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12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

THE VERY BEST GRADES AND WARRANTED TO BE PURE

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MEDINA
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75 HIVES OF BEES.

INQUIRE OF
AUG. LEYVRAZ, Francis, Fla.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's strain of Italians,** the result of 15 years' careful breeding.

Dr. H. B. Lung, Lexington, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious, energetic bees. I must express my admiration for your success as a bee-propagator."

Warranted queens, 80c each; 3 for $2.00. Select Warranted queens, $1.00 each. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 666 queens. Circular free. eitf

J. P. MOORE, Morgan, Pendleton Co., Ky.

Warranted Queens, 75c.

Five-band strain, bred for ***business,*** six for $4.00; dozen for $7.50. See former ***ads.,*** and send for circular. Safe arrival and satisfaction ***guaranteed.*** **J. B. CASE, Port Orange, Fla.**

OCTOBER ONLY.

I have a few extra-fine ***Breeders*** producing uniformly marked, all straight 5-banded bees. I will deliver, express prepaid, at $3.00 each. These queens in the spring will be worth $5 each. Safe arrival and satisfaction guaranteed.

W. H. LAWS, Lavaca, Seb. Co., Ark.

AUSTRALIA.

Bees, Queens, and Bee-keepers' Supplies, 32-page illustrated catalog free on application.

W. S. PENDER, Apiarist, R. L. PENDER, Manufacturer,
20-21 West Maitland, New South Wales.

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500 YOUNG FERRETS

Now ready to ship at only $3.00 a pair. Price list of Bees and Ferrets free. **N. A. Knapp, Rochester, Lorain Co., O.**

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Awarded my ***Foundation.*** Send for ***free samples.*** Dealers, write for wholesale prices. Root's new ***Polished Sections*** and other goods at his prices. ***Free*** Illustrated Price List of every thing needed in the apiary.
Bell Branch, Mich. **M. H. Hunt.**

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Sign, and Mail.

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To the Publishers of **American Bee Journal,**
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This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money,* also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially

FOR THE WEST.

Joseph Nysewander, Des Moines, Ia.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES, AND HONEY, AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT.

$1.00 PER YEAR. MEDINA OHIO

Vol. XXII. OCT. 15, 1894. No. 20.

STRAY STRAWS

FROM DR. C. C. MILLER.

FOR DIARRHŒA, Pfarrer Kneipp says take pure yellow beeswax, the size of a pea, once an hour.

MY TWO-GALLON CROCK feeder worked first-class. Don't know but it's best of all. [Yes, sir!—ED.]

"HONEY-PLANT" is a common term in this country, and "bee-flower" stands for the same thing in England.

WHAT'S BEST to make water-tight the inside corners of a feeder—white lead, beeswax and rosin, pure beeswax, or what?

M. M. BALDRIDGE mentions, in *A. B. J.*, a man who sowed 80 acres of sweet clover. He keeps no bees, but sowed it for hay and pasture, and to enrich the soil.

IN SHIPPING BEES, C. Dadant says, in *Revue*, he would give no water, no pollen, no brood, only *sealed* honey. All this to avoid having the bees' intestines distended.

TO SHAKE BEES off a heavy comb, hold the frame with both hands; if the comb is light, better hold it with the left hand, and pound with the right fist on the left.

A LIVELY ROUND, THAT, 'twixt the light-weight and heavy-weight on page 757. Sick 'em! [Yes, sick 'em. Come off that fence, and try a round yourself.—ED.]

TOBACCO I don't use; but I use 1¼-inch tobacco staples, and like them the best kind to fasten covers and bottoms on hives. [I've tried the same things; they are good.—ED.]

KISSING is tabooed by Dr. Peiro, in *A. B. J.*—at least, *indiscriminate* kissing, especially of babies, on the score of health. The blessed babies will all want to kiss Dr. Peiro for coming to their rescue.

'TISN'T FAIR, Bro. Hatch, for you to take hold of my leg and pull. Let me alone on the fence till I see on which side is the best landing, and then I'll jump on that side. [You can even things up a little, Bro. H., by pushing that leg on to my side. The doctor has been on the fence long enough.—ED.]

GERSTUNG says extracting during fruit-bloom is good, as returning the extracted combs to be cleaned up excites brood-rearing, but the same thing is not advisable in the main harvest, as it excites swarming.

REPLIES in *A. B. J.* leave the impression that absence of drones is no security against swarming. [Say! is there any thing that is a security against swarming in the production of comb honey, in the case of a normal colony during the swarming season?—ED.]

GRAVENHORST says that American lindens planted in Germany give far greater yields than European. [Of *course*, he doesn't mean Canadian lindens. They are not as good, you know, as the linden on this side.—ED.]

THE HEAVY RAINS following the terrible drouth have fooled vegetation into thinking it is spring. I never knew grass so bright green in the fall, and dandelions are blooming by the hundred. [Just so here at Medina.—ED.]

LE RUCHER, Amiens, France, illustrates and describes the Simplicity, portico, and chaff hives as three American hives. They *were* prominent American hives, respected *Rucher*, but have now given place to the Dovetail hive.

A PERCOLATING FEEDER isn't fit for late feeding. Feed too thin. But then no feeding ought to be done late. [Yes; and if late feeding *must* be practiced, the old thick syrup (2 of sugar and 1 of water) should be fed in the old way.—ED.]

EGGS, 2000 daily, is only an average for a good queen. Before the development of her ovaries she weighs .2 gram; 2000 eggs weigh .42 gram, so she lays more than twice her own weight of eggs daily. But the workers digest her food for her.

A WRITER in *Schweizerische Bienenzeitung* says bees don't propolize their hives for warmth, but as protection against the bee-moth, closing the cracks where eggs might be laid. [I hope he is right; then we will turn our attention toward getting the bee-moth extinct.—Ed.]

I was reading in the French bee-journal, *Le Rucher*, an interesting article on the anger of bees, and something about it seemed strangely familiar. After reading two or three pages I glanced at the end, and there saw "translated from Root's A B C."

The chief honey-plant being asked for in *A. B. J.*, 14 mention white clover; 11 linden; 3 heartsease; 2 Spanish needle; and the following are each mentioned once: Poplar, white sage, wild buckwheat, locust, alsike, catclaw, horsemint, mesquite, fruit-bloom, and goldenrod.

Carbolic acid, painted over cracks where robbers are at work, seems effective. Why mightn't it be good at the entrance of a robbed hive? [I've tried it. It is too much of a good thing. It disconcerts the inmates of the hive as well as the robbers; and after a little the latter seem to take advantage of the situation. —Ed.]

To avoid cracks in cakes of wax, don't let the outside cool rapidly. Cover a cloth and board over the dish while cooling, or let it stand in a stove oven while the fire dies out over night. [But what harm do cracks in large cakes do, any way? We cake the wax the handiest and quickest way, cracks or no cracks. —Ed.]

A balled queen, we are told to release by blowing smoke on the ball. But there's a right and a wrong way. Hold the nozzle of the smoker close to the ball, and blow hot smoke on them, and you might about as well step on the ball. Hold your smoker at a distance and blow cold smoke on the bees, and all will be lovely.

Remember, when robbers are troublesome, do any thing, *any* thing, rather than take out of their way the thing they are robbing, without leaving something in its place. Outside appearances must remain unchanged. [This looks like bad advice; but I am coming to believe it is all right, notwithstanding A. I. R. thinks it is all wrong.—Ed.]

"Fegling" is the German name for a kind of artificial swarm originating with Gravenhorst, and indorsed by Gerstung as coming nearest to a natural swarm. From a strong colony, take one frame of brood, with adhering bees and queen; put in empty hive on a new stand; fill out with partly built combs; brush into it all the bees, and trust old bees to return to old stand and raise a queen. Hardly looks right, does it? But remember Gravenhorst is no spring chicken.

John Galvin, p. 765, says if the bees build foundation to the bottom-bar they'll surely cut it out again, and my assistant has been encouraging me by the same dismal prophecy. Well, the bees have cut out some, in one case leaving a space of 1½ inches between foundation and bottom-bar, but I don't believe they'll be so naughty in a good season, and I don't expect them to disturb it after they have pulled out cells full depth.

GENERAL CORRESPONDENCE

THE TREATMENT OF FOUL BROOD WITH DRUGS.

A SUCCESS IN FRANCE.

By Charles Norman.

It were a mistake for us to suppose that, in this country of ours, there are no bee-keepers who believe in the treatment of foul brood with drugs, or, as the scientific expression is, the antiseptic treatment. There are some, no doubt, but at the present time they evidently take a back seat since our leaders unanimously denounce said treatment as a failure. Prof. Cook, the Roots, Mr. R. L. Taylor, Dr. Howard in his work on foul brood, and others, differing solely in regard to some details, practice and advocate "that sure and reliable method, transferring, as first announced by Mr. M. Quinby, and, later, recommended by D. A. Jones." Not so in France and Switzerland. There lie before me several of the latest numbers of *Revue Internationale d'Apiculture* (International Review of Apiculture), edited in French by Mr. Edouard Bertrand, at Nyon, Switzerland. On pages 28—30 he relates, for the benefit of those of his readers who might not have succeeded by the use of disinfectants, an extract from Mr. R. L. Taylor's article on foul brood, which had appeared in the February number of Mr. Hutchinson's *Review*. According to Mr. Bertrand's opinion, however, the transferring plan has by no means always given satisfactory results; is too troublesome, is connected with the destruction of the frames, and arrests the development of the brood for some time. In conclusion, mentioning Mr. Taylor's assertion that, though trying the use of carbolic as well as salicylic acid, in quite a number of cases, he never saw even a sign of improvement through them, Mr. Bertrand says: "This assertion is somewhat surprising to us, for, as several times we had an opportunity to tell, we have personally received a radical cure of 37 colonies by the use of salicylic acid." Quite a dilemma, the solution of which can be found only in the fact that Mr. Bertrand must have followed a method entirely different from Mr. Taylor's; for it would not do to say that perhaps those cases Mr. Bertrand speaks of had not been the real foul brood. Every page of Mr. Bertrand's

Revue proves that he *is* a bee-keeper; and when he says that he has cured foul brood he *has* done it.

On pages 98 and 99 Mr. Charles Vielle-Schilt reports two cases of foul brood which he cured by the antiseptic treatment. I remark, however, that, in both of them, the disease was in just its incipient stages. In the first case, he commenced with cutting out every particle of sick brood, leaving of the cells whatever could be saved, and cleaning them well. Then, after brushing off the bees, he put these cleaned frames, as well as those which contained only honey, into an empty hive, where he exposed them to the vapors of sulphur for several days; this hive was to receive the colony afterward. As to the other, in the affected hive he killed the queen and confined the bees to the frames which contained healthy brood. Then he fed them an antiseptic food, a treatment that has to be continued for a long time—at least, till the bees hatch from a new queen. The food consisted of two kinds of syrup, which were given alternately, every other day each. The first mixture consisted of a litre of sugar or honey syrup, to which a gramme of naphtol dissolved in rectified spirits of wine had been added. For the second mixture, instead of the naphtol a little stronger dose of camphorated alcohol was used. The second mixture has to be administered because the bees, "on account of the remedy, have pains" to take the first. At the same time, pieces of camphor, enveloped in cloth, were placed under the frames. The same precaution was also taken with the hives near the diseased one. For twelve days the colony was left undisturbed, when an open queen-cell was found, and all the others were destroyed. On the 21st day the colony was transferred into that hive which contained those sulphured frames, and which had previously been exposed to the air to remove the odor of the sulphur. Having a better queen than the one reared by the colony, the latter queen was killed and the other one introduced in a cage. How long the colony was fed with those mixtures is not stated; but Mr. Vielle-Schilt asserts that the colony, as well as its stores, increased fast; that the bees, when put into winter-quarters, did not show any signs of the disease, and that in spring they prospered and were in fine condition.

The other case, found in a straw hive in fall, at the end of September, was treated differently. All the brood that could possibly have been diseased was cut out and destroyed, and pieces of camphor, enveloped in cloth, were placed in that part of the hive where no combs were. The colony received no other care. In April the smell of the camphor was still perceptible; some fine brood was to be seen in newly constructed cells, and the disease had entirely vanished.

On pages 70 and 71 a correspondent reports that, on the 18th or 19th of July, when opening a hive he noticed that the colony had foul brood. He directly administered a dozen pieces of naphthaline. Four days later the disease had increased, for all the four combs that contained brood were attacked and all cells burst. He then removed the naphthaline and gave a mixture of syrup and eucalyptus tincture, the latter consisting of one part of essence of eucalyptus and nine parts of pure alcohol. At the commencement he used one teaspoonful of tincture to a litre of syrup; then he gave two teaspoonfuls, then three. After eight days of this treatment the middle of the diseased frames was clear, and filled with eggs; and, besides the original four frames of brood and eggs, two more frames of eggs were seen. A fortnight later, the colony had ten frames of perfectly healthy brood, and eggs (the frames were small, only six decimeters square*); on only one of those four originally diseased combs a few larvæ were doubtful. A week later the foul brood had entirely disappeared, the hive contained considerable honey, the colony was active, and wintered splendidly. Some camphor was placed in all the other hives, and a teaspoonful of eucalyptus tincture added to the winter food of each. A neighbor of the correspondent also used eucalyptus tincture with the same good result. In April the same correspondent reports that said colony wintered best of all his colonies, and that it was one of his very strongest. He adds that he had forgotten to mention that, before treating the colony, he removed it from its hive and washed the latter in boiling chlor., after which he returned the colony to the hive. His neighbor had washed his hive with sublimate. Mr. Bertrand remarks in a footnote, that said treatment is the one introduced by Messrs. Bauverd, Delay, and Auberson, and recommended in his (Mr. Bertrand's) book, "Conduite" (Management), and that, on account of its "pronounced" savor, the dose of eucalyptus tincture (like phenyl, naphtol, etc.) has to be augmented gradually.

On pages 25—27, Mr. Ulv. Gubler writes about formic acid. "It is," he says, "perhaps the most powerful antiseptic known. Thanks to it, the honey preserves itself indefinitely. There has been found at Dresden, in the eaves of an old house, some well-preserved honey, dating back to the fifteenth century!" Thanks to the formic acid, with which the air of the hives is always saturated, the frames, the pollen, and the nourishment of the larvæ, keep without fermenting. Mr. de Planta relates an experience of Prof. Erlenmeyer, at Munich, who put a little formic acid, which had been well diluted in water, into a certain quantity of beer in full fermentation. It immediately arrested the fermentation. It is quite natural that the apiculturists said to themselves, "If the formic acid is powerful enough to kill the ferment of the bee, would it not likewise annihilate the germs of foul brood?" And, really, many practitioners pretend that it is the best means to arrest and cure that terrible disease of the brood.

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*That is not very small—23⅛x23⅛.—Ed.

The *Schweizerische Bienenzeitung* (Swiss Bee Gazette) cites some experiments which have been successful. One proceeds thus: "The bees of a diseased colony are, as much as possible, contracted on some frames. All the other frames are set aside. In a frame with empty combs, there is let drop from a certain height, in a thin stream, 100 grammes of formic acid at 20 per cent, and then it is placed in the middle of the infected colony. If the weather is fine, and permits the bees to fly, all the attacked brood will be abandoned in eight days, the cells will be cleaned, and all bad smells will have disappeared. Seldom is one obliged to repeat the operation. To preserve the other colonies, it is well to place in them a small bottle with the acid, corked lightly with a little cotton. To hasten the cure, one can, without fear, mix the remedy with the food of the bees, a teaspoonful to the litre." Three of our friends, in whose apiaries the foul brood had appeared, have applied the remedy with success. When we visited them we noticed a good deal of brood in a state of complete putrefaction, while, a few days later, these colonies were already better. When they had to be put into winter quarters they were strong and in good condition. After this, Mr. Gubler speaks of the origin of the formic acid, and says that, according to Mr. de Planta's scientific and irrefutable researches and analyses, it is neither contained in the nectar of the flowers nor does it come from the air in the hives; but its origin is to be found in the blood of the bees.

St. Petersburg, Fla., Aug. 31.

[As Mr. Norman truly states, we in this country do not take much stock in the antiseptic or medicine treatment; but Mr. Bertrand is one whose opinion should be given some weight. It is with pleasure that I give place to the above for what it is worth; for if a successful antiseptic may be discovered, it would save a large expense. This is the first of a series of articles from our foreign exchanges.—Ed.]

RAMBLE 118.

THE MERCER FAMILY, ETC.

By Rambler.

In this ramble I wish to place Mr. Mercer in a little different role from that in which he was a prominent actor in our last. It is hardly necessary for me to introduce him to your readers, and especially the readers of Gleanings on this coast. Mr. Mercer is widely known here as an extensive and successful bee-keeper. He was an enthusiastic bee-keeper many years ago, away back in Iowa, and for at least thirty years he has had an interest in bees and bee-literature. His married life dates back that number of years, and, from his happy surroundings, it would seem that his honeymoon has never waned. Mr. Mercer has four apiaries, and a total of 700 colonies. Last year, 1893, from 300 colonies, spring count, he obtained 24 tons of honey, and increased to 600 colonies. This year, from 750, spring count, Mr. Mercer writes me that his yield is represented by a string of ciphers, with a decrease of 50 colonies.

In connection with the bee-business, Mr. M. runs a general wood-working establishment, making bee-keepers' supplies, house-fittings, and water-tanks. In fact, the factory can turn out any thing in the wood-working line except boats. Boats can be made, of course, as easily as a water-tank; but Mr. M. has a slight aversion to boating, and that department is left out of the establishment.

Mr. Mercer is aided, in his various operations, by four stalwart sons, and it is a pleasure for me to introduce the whole family to the readers of Gleanings. Mr. and Mrs. M. are seated. The oldest son, Wm. Edward, stands behind Mr. M. The next oldest son, Herbert, is seated at the extreme left. Harry J. stands next to Edward; and Fred, the youngest, also stands with his hand upon his mother's shoulder. The boys have all had more or less to do with the bees; but Wm. Edward, having taken to himself a helpmeet, and being especially proficient as a builder, devotes his time to his trade, and some of the finest residences in Ventura bear the marks of his skill. Herbert runs the factory, aided by the others when necessary. Harry J. is something of a photographer, while Fred, as Mr. Mercer puts it, is an all-round bee-keeper, and can handle more bees than any man he ever had in his apiaries. Mrs. Mercer, of course, lends a helping hand to all of the operations of husband and sons.

It will be observed that Mr. Mercer looks about as young as his boys, and it causes no little amusement in the family circle to have the "old man" often taken for one of the boys.

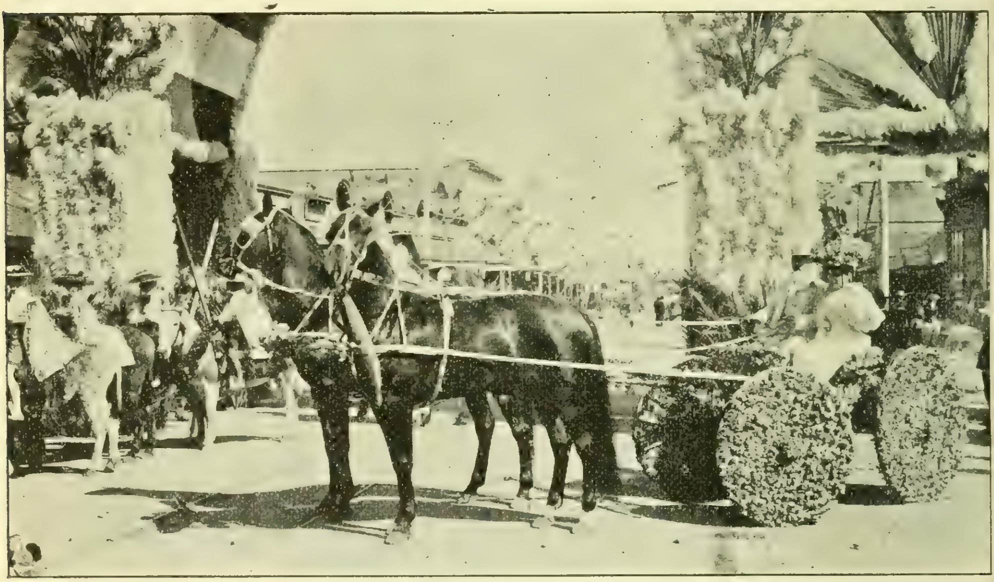
Mr. Mercer has made some fine exhibits at various fairs, and for a long time has had on exhibition in the Chamber of Commerce, at Los Angeles, a single comb (I estimate the size from memory) four feet in length by over one foot deep, with the name Mercer in large raised letters on the side of the comb, all made by the bees. This comb was also a prominent feature in Mr. Mercer's fine exhibit at the midwinter fair, where, I believe, he and Mr. Mendleson took the first premiums. Take it all in all, Mr. M. is an all-round man except in the matter of navigation.

It may interest your readers to learn that those large water-tanks manufactured by the Mercers are in common use in Ventura Co. They are made to contain sixteen barrels of

water, and are used for drawing water for domestic use, for irrigating fruit-trees—the whole tankful being put around one tree. The drenching supplies the needs of the tree for a long time. Mr. Mendleson uses one of these tanks, with his big team ahead of it, to draw water to his apiaries. The one recently illustrated among the eucalyptus-trees has a location several miles from water. Ventura Co. has a fine system of road-sprinkling, and that is where these tanks come in to bless the traveler, and no less the beast that aids him. Water-pipes run out 15 miles from town, and the water is taken from large stationary tanks located at proper distances, and the otherwise intolerable dust (so common in California) is subdued.

Bro. Wilder and I were pleased with all we saw in Ventura Co. The people are wide-awake and progressive, and none are more so than the bee-keepers. Ventura Co. bee-men are the most staunch supporters of our conventions, and, other counties doing as well, there would be more accomplished for the benefit of the fraternity at large. Several of the prominent bee-keepers were out to their apiaries—Mr. Wilkin, and the Rapp Bros. It would have been a pleasure to the Rambler to meet them again, and to test their sea-going qualities.

Our pleasures and adventures in Ventura, however, came to an end, and on June 25th we attached our ponies to the outfit, and, bidding good-by to our good friends, went on toward Santa Barbara through the beautiful Casitas (*kah-se-tas*) Pass. We enjoyed an ideal day and a delightful road, shaded with oak and sycamore, every little valley occupied with fruit-ranches, the trees loaded with fruit, and the environments of the dwellings blooming with flowers. We pass Carpenterea and Summerland, the latter town founded and supported by spiritualists. The location has a fine outlook upon the ocean, and a barren rear look upon the dry hills; and a conspicuous feature was the number of cottages for sale. Altogether, Summerland is better to read about than it is to witness. It is one of those towns that look well on paper; but a square look in the face of it dispels many of the anticipated pleasant features. We camped not far beyond Summerland, and the foliage of an old neglected olive-orchard protected us. The bees were merrily humming upon the trees in the early morning. It would seem that this would be a good bee-country; but it seems that there are but few domestic bees in this vicinity.



FLOWER FESTIVAL, SANTA BARBARA, CAL.

We spent a few hours during the day upon the streets of Santa Barbara; viewed the people, the Old Mission, and the elegant flower-bedecked and behidden private residences, giving hints of wealth and ease. Santa Barbara is not much of a center for honey interests; but it is a center for the beautiful flowers, amongst whose petals the bee loves to revel. Annually Santa Barbara convenes for several days of pleasure in a flower festival. Flowered arches spring across the street; flowers bedeck man, beast, and vehicle; the scent of fragrant flowers is in the air, and all business is dropped for the pleasures of the day. The great festival had transpired many weeks previous to our visit; but to know that Santa Barbara is a devotee of the flower, as well as the busy bee, is a pleasure to the Rambler.

LARGE VS. SMALL HIVES.

SHALL WE DISCARD THE EIGHT-FRAME FOR A TWELVE-FRAME LANGSTROTH?

By Dr. C. C. Miller.

It seems I am not to be allowed to sit comfortably "on the fence" in the matter of small vs. large hives. Here comes M. D. Andes, of Bristol, Tenn., prodding me with a sharp stick, to make me get down on the side of large hives. While conceding that every locality may have its own laws, he seems settled as to what is right in his locality. His bees are Italians, and he works for comb honey exclusively. After a success with ten-frame hives, he changed to eight-frames, and, after two years, with not so much success, he changed half his colonies back to ten-frame hives to compare results. About the same time he purchased 7 colonies in twelve-frame hives, and concluded to test them with the rest. The management of each was the same, only there was a little difference in surplus arrangements. Root's dovetail super was used on the eight-frame hives, as also on part of the ten-frames, while the remainder of the ten-frame hives and all the twelve-frame had wide frames holding eight one-pound sections.

He writes that the ten-frame hives gave him a third more surplus than the smaller ones, and the twelve-frame twice as much. He says, "This has been the worst season we have had for many years, and but for my ten and twelve frame hives my crop would have been 12 lbs. of comb honey from 20 colonies in eight-frame hives, while I got 30 and 70 lbs. from the best of the ten and twelve-frame hives. . . . Another *very* important thing. An eight-frame colony will swarm twice to a ten-frame's once, and the twelve frame colonies won't swarm at all. Of the 7 twelve-frame colonies, only one has swarmed in three years."

Now, it would be bad enough to give up the comfortable eight-framers for ten-frame hives; but, to think of having to lug around twelve-frame hives! Horrible!

What has been asked for is the actual results after fairly testing the two side by side. So far, only those have reported who have done better with the larger hives. At least, I don't remember any others. Now, won't some one give me comfort by sending in a different report—something like this? "For three years I have carefully tested, side by side, 15 colonies in eight-frame hives, 15 in ten-frame hives, and 15 in twelve-frames, and the average yield from the smaller hives has fully equaled that from the larger."

NUMBERING HIVES.

I have my hives numbered straight along in rows. If no numbers are on them, I can tell quite readily the correct number by noticing the place in the row. But I like to see the numbers on the hives; and when hives are put in the cellar it's absolutely necessary to have numbers on them if any track of their history is to be kept.

During the summer, hives are often changed from one stand to another, but it's the stand that holds the number; and if a hive changes its stand, it must change its number also. On setting out in the spring it is often desirable to set a hive on a stand different from the one it occupied in the fall. So the numbers on the hives must be changed. During the past summer the bees did so little that there wasn't any need of watching the numbers closely; so, many of them remained unchanged till fall. But they'll go into the cellar rightly numbered, and a good bee-keeper wouldn't like to leave them in such a slovenly shape through the summer. Most years I keep the numbers straight all the time.

As the numbers are changed so often, it is important to have an easy plan for it. I have pieces of tin 3½x2 inches, painted white, then the figures in black. A hole is punched near the top to drive in a half-inch wire nail. You will see that it's an easy thing to take one of these tags off a hive. Just slip a screwdriver under the tag close to the nail and pry it off. A light hammer can be used to drive in the nails, but I generally use a screwdriver. I don't drive in the nails—just push them in. Hold the nail between the thumb and finger of left hand; push the edge of the screwdriver between the same thumb and finger against the head of the nail, and, while pushing hard against the nail, keep the thumb and finger holding tight to the nail, so it can't turn to one side or the other. You'll find it isn't hard work to push the nail in, and you'll not make the bees cross, as you will by hammering.

CROSS BEES.

Speaking of making bees cross, my bees were very cross two or three years ago. I hardly know why. This year they're very good-natured. I hardly know why. It must be in the bees themselves, for this is one of the poorest honey years I ever knew, the time of all times when bees ought to be cross. The only reason I can think of is, that I have made it a practice for the past few years to kill the queen of any colony that showed too much bad temper. In an apiary of a hundred colonies, two or three cross colonies will furnish enough stings to make it appear that every colony in the yard is savage. I am just a little inclined to the opinion that a queen has an influence upon the temper of a colony, independently of the kind of bees she produces. When I've killed the queen of a cross colony, I've noticed that I didn't have to wait till there was time for all the bees to be changed, but that the bees were good-natured before the new generation came on the stage—at least it seemed that way. We know very well that a queenless colony is generally crosser for its queenlessness. When it receives a queen it becomes good-natured. That seems to teach that the presence of the queen makes a difference in the temper of the bees. Is it altogether unreasonable to suppose that one queen will not make exactly the same difference as another?

Marengo, Ill.

[Perhaps some of our readers are becoming tired of this hive question; but I think it is an exceedingly important one, and I do not believe we can afford to drop it just yet. What we want is more facts. Let us hear from both classes of bee-keepers—those who find they can produce more honey with a larger hive, and those who can do better with smaller hives—at least, secure just as much honey with less labor in lifting. It seems to me that A. F. Brown, in the article on page 796 did pretty well with the eight-frame hive—that is, two eight-frame bodies, one on top of the other, when he produced 52,000 lbs. of honey from 193 colonies, or an average of over 269 lbs. It is true, there are larger averages from other bee-keepers, in the same locality, and it is possible that they used a larger hive. I wish Mr. Brown had told us the size and style of hive used by each in his enumeration of the large yields of the different bee-keepers. But after all, suppose it should turn out that some of those who secured larger averages used larger hives; does that necessarily prove that they produced 100 lbs. of honey with less labor, if we consider the fun of handling—that is, the lifting of twelve-frame hives and Long-Idea hives?

I have a sort of feeling myself, however, that the larger hives will produce larger averages (and they ought to, surely) per colony; and I presume that, when we get up as high as the twelve-frame size, swarming will be reduced to a minimum, and here indeed must be a saving of considerable labor. But I will stick to it yet, that I do not want to lift twelve-frame hives full of bees and honey. I would rather lift it half at a time. If a twelve-frame is better than a ten-frame hive, is not a sixteen-frame better than a twelve-frame? and if a sixteen-frame capacity is right, then the eight-frame is all right as it is. Two hive-bodies would be far easier to handle than one twelve-frame.—Ed.]

HIVES VS. HIVES.

THE IMPORTANCE OF A BROOD-NEST SUITED TO THE SEASON; A WELL-WRITTEN ARTICLE.

By C. W. Dayton.

Editor Gleanings:—In regard to this hive discussion which has been going on, I would say that it may not be so much holding upon the amount of brood there *is* as upon how much brood there *is not;* or, how well the bees work at honey-gathering.

I took a trip along the San Bernardino range of mountains after sage bloom. In one apiary, near Calabassas, one colony in an apiary of 140 had stored two supers of comb honey, while the rest had done hardly any thing. Near San Fernando, 12 miles farther east, two or three colonies stored their supers full for extraction, probably 40 lbs., while the rest of the apiary had done nothing. Ten miles farther east, only half a dozen filled their hives for winter, out of an apiary of 200. Six miles farther comes to a part of my apiary where 56 colonies gave two 21-lb. supers of faultless sections, and a 20-lb. super for extraction—not a variation of 10 lbs. in the whole batch.

A friend, who secured 150 lbs. to the hive in 1888, knowing that I sometimes write for the bee-papers, said, "Now, I can make a big report as well as you." I asked him to find one of my reports, either big or little—I should like to see it. It seems that, with all his reading, he did very little *thinking.*

There is no mistake that this has been a far worse season than common. In such seasons, even the instincts of the bees seem to change. Before sage bloomed they received so little outside encouragement that they became low-spirited and disheartened, but, through force of habit, kept up a small supply of brood at the expense of old stores. Then when sage bloomed they occupied two weeks at little more than gathering courage, and then used the remainder of the harvest in extensive brood-rearing. The flow of honey was so light that, with plenty of space, there could be used up in brood the next four weeks of gathering. Bees are like shoemakers, printers, and railroaders—prefer to stay at their old occupation. If they are slightly attracted from it they eventually get back again. So the principal drift of energy this year was brood-rearing. The queens knew nothing of the scarcity of rainfall last winter. Their business was egg-laying, and it devolved upon the bees to care for them. The first aspiration of bees being brood-rearing, they lay up a winter store with no more design than cattle move forward to pastures green—a thing they seldom do until present pastures fail. The reason pollen or honey accumulates in the combs at any time is because a large proportion of bees are too old for nurses, and have cultivated the gathering habit. In seasons of scarcity, brood may consume all they gather until the latter end of the flow, when there comes a superabundance of old bees, or more than the queen could keep occupied caring for brood. This may depend upon how long the flow lasted, or how weak the colony was at first, and how large it became at the end. About this time the bees conclude that, if the queen's wants are supplied, they will be content. There is many a man who would accumulate a fortune if he could scrape up the dollars by the measureful; but when it comes to delving for a "copper" here and there, he takes readily to the corner dry-goods box. If the habit of delving for coppers were cultivated, it might grow upon him.

It is not so much matter as to how many tons some one has received, as *why* these individual colonies so far outstrip the rest of the apiary. And, even in their case, might not their condition be varied so that they would have done even better? When we are able to produce individual colonies we may then have individual apiaries.

Mathematically, the ten-frame Langstroth hive has capacity equal to the capacity of the queen, and 30 lbs. of honey. In my hive the honey is left off by making the frames 4¼ inches shorter, or 9¼x13½. These are strictly brood frames. At the beginning of this season it was determined that, if there was no honey stored, there should be very little brood reared. Accordingly I prepared to go to an extreme measure by transferring the colonies into brood-chambers exactly ⅜ the size of the standard ten-frame L., just about half the space the average queen will occupy with brood. They were kept in prosperous condition by feeding, and gotten as strong as possible in as short a time as possible, and transferred as near the commencement of the sage-bloom as could be determined. This is contraction and expansion; but the adoption of any certain hive for all seasons, some of which are very good and others correspondingly poor, is tramplike, because tramps stick heedlessly to the railroad, around curves, thick and thin; but the intelligent traveler secures many shorter across-the-country cuts: and when the long way around is the easiest, he takes it. This year, colonies which attained a rousing strength in large hives were too late for the harvest, for the simple reason that there was no encouragement to build on except the harvest. Then when strong, honey did not accumulate, because it was hard to get. But there was enough gathered for the brood. They would give their dear lives to save the brood, and they will also give nearly as much to extend the comb-space to suit the laying capacity of a good young queen. There is said to be much energy in a newly hived swarm. In the case of a swarm it is unsteady and short, and all the more so if the swarm has an old queen; but in the old colony, with young queen, striving for breeding-space, the energy clings with steady, everlasting grip so long as the new combs are removed, making the brood-space incomplete. Honey was so scarce this year, that, to deprive the bees of their brood or deprive the brood of the old bees, was destruction to both parts. Out of 20 or 30 swarms hived, only four were a success, and these were fed before and after swarming. Where they did not abscond they eventually played out. So in beginning the season with 133, and having over 90 swarms, I ended with 125 colonies, then increased 35 artificially.

Before the harvest I sold a neighbor 25 colonies, the best he could pick out. He *enlarged* the hives one-half, and transferred the bees about the time I *reduced* my hives one-half. He got no surplus, but increased, by natural swarming, to 45 colonies. Then he felt jubilant. Since then he has lost, by starvation and absconding, 22 colonies, with bright prospects of losing more. This was three miles away.

Another, who has taken as much as 35 tons in a single season, said he thought I was "off on the contraction of hives in California." He was located one mile away. We visited forth and back, and, as he came once in about ten days, I removed a super from a number of the contracted colonies until he saw four 21-pound supers taken from each, and more empty sections put on. He had been particularly bent against section honey. The last time I was at his apiary, seeing a quantity of sections, supers, separators, foundation, Daisy fastener, and Danzenbaker boxes, I asked if he was going to enter the supply-business. He said, "I am going to try your contraction." And this, right on the tail of the harvest!

Thirteen bee-keepers out of a dozen care very little whether their hives are adapted to the requirements of the one-pound section; but it is amusing to see the pieces of plank, boards, shingles, shakes, shavings, and newspapers they will utilize to conform their hives at times.

Still another remarked: "Why, it would not matter what kind of queens a contractionist had, with such small hives."

Yes, sir. I want just as prolific queens as can be reared. The more space the queen wants, the more I can intrude upon her domains with my section-boxes. The bees know a prolific queen better than we, and manifest such knowledge by supersedure and building worker comb, even when the queen is not "on the spot" to deposit worker eggs. Therefore the bees will extend their energetic work farther from the brood. Although the combs are built for brood, the queens were excluded and the combs were slowly filled with honey as an instinctive recourse. When the combs are removed it threw them back as much in want as at first; and as the outside row of sections were seldom finished they were placed in the new super as a starter or bait.

Too large or too small a hive would decrease the yield by increasing the brood or failing to put a new force of workers upon the stage of action as rapidly as the old ones went off.

It is one thing to get a hive full of brood, but a different matter to make bees work. They are more than willing to rear brood; but to store honey beyond the wants of the brood is not a part of their ambition. That they are able to gather far more honey than they do is plain to be seen. For instance, take a swarm weighing 5 lbs. A bee weighs a grain and a quarter, and carries a grain of honey. Then one trip for honey equals 4 lbs. Eight trips a day equals 32 lbs., and for a forty-days' yield, as we had this year and last, they should carry over 1200 lbs., not to speak of those bountiful seasons when six blossoms yield a load, and a trip takes only a few minutes. A prevailing idea is, that in these dry seasons the sage-blossoms contain no honey. This is disproved by the fact that some colonies do well. Again, there was a rank sage growth, though not so numerous a growth of shoots as in the more favorable seasons. It does not seem reasonable that a plant could make a thrifty six-foot growth and yet fail in furnishing a most minute drop of nectar. Last season the honey, when first gathered, was thick; this season, thin and watery, showing that there was moisture, at least; and a grain of honey could be dipped from white sage, by hand, in less than an hour.

Florence, Cal.

[The article by Mr. Dayton is exceedingly well and carefully written. I would emphasize especially the point he makes regarding the desirability of the right size of brood-nest for the kind of season. He shows very plainly that too large a brood-nest for some seasons is a waste; for he says that "this year, colonies which attained a rousing strength in large hives were too late for the harvest;" and further he says, "Too large or too small a hive would decrease the yield by increasing the brood or failing to put a new force of workers on the stage of action as rapidly as the old ones went off." Therefore we must consider the fact that localities vary, and seasons also vary in those localites. Of course, the advocates of large hives will claim that their hives can be reduced. Granted; but there is a lot of extra wood and extra weight, extra cover, division-board, and what not, that *must* be handled with this small colony. Now, it seems to me that eight frames is as small as most beekeepers care to have a brood-nest; and twice eight frames, or one on top of the other, is as large as unusual seasons or unusual localities will require for brooding. Then there is the attendant advantage of handling a small hive when only a medium-sized colony is wanted.—Ed.]

AVERAGING A BARREL OF HONEY PER COLONY.

SOME TREMENDOUS YIELDS FROM THE STATE OF FLORIDA.

By A. F. Brown.

Friend Root:—In compliance with your request I herewith hand you my report for the past spring and summer.

My total crop is a trifle over 26 tons, from 193 colonies in yard. Of this 26 tons, 4½ was comb honey, principally in 12-oz. sections. Five tons of this crop was "orange" honey, secured at Glenwood, Fla., during March; the remainder, 21 tons, from palmetto and mangrove, secured by moving the apiary 50 miles to the east coast, upon what is known as the "Mosquito Inlet" belt of black mangrove. This belt of mangrove represents an area of country about three by fifteen miles in extent, and there were about 2000 colonies upon the range this year, the total crop being not far from 150 tons.

A few of the heaviest yields are: Harry Mitchell, of Hawk's Park, 56 colonies, 52 bbls.—an average of 380 lbs. per colony; W. S. Hart, of Hawk's Park, 116 colonies, 344 lbs. per colony; John Olson, New Smyrna, 38 colonies, 25 bbls.—about 275 lbs. per colony; Mrs. E. A. Marsh, of Oak Hill, 98 colonies, 305 lbs. per colony; T. M. Adams, Oak Hill, 70 colonies, 340 lbs. per colony; E. O. Clinton, Oak Hill, 80 colonies, 40 bbls.—550 lbs. each; about 275 lbs. per colony; John Y. Detwiler, New Smyrna, 13 colonies, 200 gallons, and heavy increase (in justice to Mr. Detwiler I should add that his colonies were hardly more than mere nuclei at the commencement of the season); E. M. Storer, Hawk's Park, 275 colonies, 90 bbls., and about 2000 lbs. of comb honey; John Abbott, Eldora, 26 colonies, 10 bbls.; J. P. Turner, Eldora, 17 colonies, 2½ bbls., and increase to 50. Messrs. O. O. Poppleton, R. S. Sheldon, S. A. Galbreath, and many others, secured good crops; but I have not the exact figures to give in this.

The apiaries in reach of both palmetto and mangrove are the ones which gave the biggest yields; but those in reach of only one source did well for that, but do not count in the aggregates. Again, some men use only a two-story eight-frame hive, whereas others used three-story ten-frame hives; still others, the "Long-idea" hive.

Some allowed their honey to remain upon the hive until all sealed and thoroughly ripened by the bees, while others ran their extractor twice a week, and harvested "sweetened water" instead of good No. 1 honey. This is very noticeable with those who secured the "big" yields.

Again, some extracted so close that their bees will regain a good share of it back before they will meet with any more coming in. Others left 50, 75, or 100 lbs. in their hives. All these items figure in, and materially change the face of many of the yields.

Summed up as a whole, I think 200 lbs. per colony, and ample stores left within the hive, to be about correct for average good colonies. I have no record of the largest yield of extracted from one single colony; but I had several colonies that gave me from 290 to 312 lbs. per colony, of comb honey in 12-oz. sections. Mr. E. M. Store and myself are the only ones who worked for any comb honey. All others ran for extracted.

I might add, that I used a two-story eight-frame hive, my frames being the original Hoffman, as invented and used by Julius Hoffman. I used no division-boards; the inside width of my hives being 11⅝ in., frames are 1⅜ in. spacing. Propolis does not interfere with rapid work; on the contrary, it is quite valuable when migration is followed.

With honey off the hives, and in the extracting-room, I have, with one assistant to help, uncapped and extracted five 45-gallon barrels in 4½ hours, using one of your two-frame Cowan extractors. All my honey remains upon the hive until sealed. I use two Bingham knives, heated, for uncapping.

This is my third year following migration, and my sixteenth move, covering distances from 5 to 300 miles, with from 100 to 300 colomies. Since the close of the mangrove season I have moved my apiary to this place, a distance of 75 miles, and placed it in reach of some 60,000 acres of swamp, and 2000 acres of orange-groves, ready for winter and spring flows. I am well acquainted with every nook and corner of East, Middle, and South Florida, and the honey resources all over the State, having compiled the State Reports for three years. I have visited and investigated Cuba and her honey resources, and could add several items to Fred O. Sommerford's article in Sept. 15th GLEANINGS, but space forbids.

San Mateo, Fla., Sept. 23.

[When A. I. R. was visiting at Mr. Langstroth's, in Dayton, the latter told him that he had received a report from a bee-keeper in Florida who had averaged a barrel of honey per colony for his whole apiary. When the senior editor came home he wanted to know if I had received reports of any such yields. "Why, yes," I said. Our Honey Statistics had given an inkling of something of the kind, but did not put it exactly that way. He thought we ought to find out more about it at once. But I suggested that these big yields were sometimes misleading, and that we must not make too much of them. But Mr. Brown has written the matter up in such a way that I do not think there will be any wrong idea conveyed. We must remember that yields per colony in the South (and that includes Cuba) are much larger than those in the North; so we must make due allowance for locality. While most bee-keepers of the North have been reporting a rather poor season I am sure they will all rejoice with their bee-keeping friends in Florida who have produced such enormous yields, even aggregating a barrel per colony, if we consider the barrel as one of standard size—31 gallons. Larger honey-barrels are unwieldy to handle, so the smaller sizes are usually meant when spoken of.

I have been a little fearful that the Hoffman frame might not be satisfactory in the extreme South, where the propolis is deposited more freely; but it seems that, if one will throw aside his old-time prejudice, and really open his eyes to something better, he may handle these frames to better advantage than the loose unspaced style.

I scarcely know what is a big record for extracting—that is, the largest number of pounds taken out in a given time; but I am rather of the opinion that five 45-gallon barrelfuls, or 2500 lbs., in 4½ hours, is a record-breaking feat for a two-frame extractor. Here is a pointer for those who are using the non reversible machines.

The rest of my footnote will be found attached to the article of Dr. Miller's, p. 793, and to which friend Brown is referred. I hope he will not only give us the information called for, but the "several items" in reference to Mr. Sommerford's article in GLEANINGS for Sept. 15.—ED.]

RIPENED OR DIGESTED NECTAR.

CROSS (?) OF CALIFORNIA.

By Prof. A. J. Cook.

I read last GLEANINGS with sincere pleasure. The new ideas regarding feeding by percolation, from Dr. Miller and Mr. Boardman, pleased me much, as I am working on the same line. I am free, and rejoice to say that they are ahead of me. I was amused to hear of Mr. Boardman's experience, that it did not granulate as the "bees ripen it." We usually speak of ripening as a thickening process, and we all know that, the thicker cane syrup is, the more readily it crystallizes. Why not speak the truth, and say the bees digest it, or convert it into honey—a glucose sugar? Mr. Muth says it is cane sugar stored. Why, then, does it not granulate or crystallize?

I did not say in my article that the so-called paralysis was caused by too little stores. I see no reason to change my mind regarding the new bee disease.

We have heard much of cross bees in California, or, rather, that the California bees are peculiarly ill-natured. My present bees are hybrids, between blacks and Italians, with black blood in the ascendency. This season has been a very poor one. Such a combination in Michigan I used to dread, in case I had to work with the bees. I have not been troubled at all here. I have worked not a little with no veil, and often with no smoker.

People are often annoyed by having their shade-trees injured. Horses are hitched to the trees, and soon girdle and destroy them. I have a magnificent oak in my yard. It is immense, and its shade and beauty are our constant joy. Well, I have no sign up, and yet no one hitches to this mighty monarch. I believe the bees enjoy it as much as I do. It shades the bees, and me while I work with them, and I have little fear that horses will be tied to it.

I have been through Ventura Co. twice lately; but time would not stop nor listen to my stopping, so I passed Fillmore, Santa Paula, and Ventura, with great longings to visit McIntyre and our other friends. My regrets were renewed as I read Rambler's account of his and our good friend Wilder's visit in that region.

Claremont, Cal., Sept. 26.

[I do not think we can successfully deny that bees do do something to nectar or thin syrup after they get hold of it. Chemical analysis shows a slight change; and when honey or syrup is fed thin enough they ripen it or digest it, or do something to it that changes it somewhat. When syrup is fed thick, or in the old proportion of two of sugar to one of water, less change necessarily takes place—perhaps none at all in some cases; but when it is fed thin—half sugar and half water, after the bees have stored it in the combs it seems to have undergone a change. It looks a little different, and it tastes a little different. You seem to prefer the word "digest."* If there is a change, I should prefer the word "ripen." It seems to me it is more palatable to the consumer to think of it as such; but whether this ripening of thin sugar makes it really and truly honey in every sense of the word, is something I can not quite admit. Prof. Wiley's definition of honey seems to me to be correct when he says that it is nectar gathered from flowers, and stored by the bees; and chemically, if I am correct, it does not have *all* the qualities of honey from flowers; yet I am quite willing to admit that thin sugar syrup, if fed to the bees, and stored, will taste very much like ordinary honey; but I am opposed to calling it honey, for it has not gone through the legitimate process of being gathered from flowers.—ED.]

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*It seems incorrect to use the word "digest" in connection with nectar or honey until it has been acted upon by the true stomach for food. Not until then does it begin to disintegrate and start to build up that which is continually wearing away, by converting, in the language of Cowan, the nutrient particles of the food into blood. Nectar is held in

NOTES OF BICYCLE TRAVEL.

By Ernest R. Root.

At the depot at Flint I inquired where W. Z. Hutchinson lived.

"Do you mean the editor of the *Review*?"

"Yes, sir," I said.

A small boy started me up the street, and ere long I was before the home of the *Review*. It was now dark; but after passing through the gateway I saw that some girls were swinging in the hammock under some broad-spreading trees. These proved to be the *Review* twins. One of them started for her father, and very soon a tall, stalwart figure, as straight as an arrow, dressed in work-clothes, appeared from around the house; and before he could see me distinctly he held out his hand with a cordial "How do you do, Ernest?"

He is one of those professional men who are not afraid to put on overalls, and to get right down to honest, hard day's work; neither is he ashamed to appear in his work-clothes.

We went into the house, and I was soon making the acquaintance of baby Fern. No wonder Bro. H. is proud of her. I had intended at this time to present here a nice picture of her; but I am sorry to say that the half-tone here shown doesn't half do her justice. It is sufficient to say that I took a "great shine" to her, and she to "that man," as she called me. The Hutchinson home was happy before she came; but it is doubly so now, I should judge.

Mr. Hutchinson and I soon fell to talking about photography—a hobby that we both pursue at times, with a great deal of enjoyment. The talk that followed for the next few minutes, regarding negatives, snap shots, and time exposures, probably would not be particularly interesting at a bee-convention, nor even here, and so I'll not repeat it. But while we were thus engaged, it seems that baby Fern did not care to go to sleep, in spite of the efforts of her mother. Finally papa was called upon to perform the task—something he did with entire success. Mrs. Hutchinson explained that, inasmuch as her husband had his office in the house, he had taken a good deal of the care of Fern, and sometimes she seemed to think that her papa was a little bit better than her mamma.* The case is otherwise at our home.

Next morning Bro. H. and I visited for awhile in the *Review* sanctum. He showed me some of the photographs he had taken illustrating the different phases of apiculture. In the production of clear, well-defined, sharp photos, illustrating bee-keeping, he certainly will carry off the palm.

As my stay was to be brief, we next repaired to the *Review* apiary. This, I saw, was made up of Heddon-Langstroth and Heddon divisible-brood-chamber hives.

As to the size of hives, Mr. H. did not express himself very positively; but seemed to think that the eight-frame capacity was large enough for his locality. As to dead brood, he had seen nothing of the kind in his apiary, but thought Mr. Taylor might be able to show me some. After taking a look at some of the Atchley five-banders, we turned our attention to the Atchley plan of keeping the surplus queens in small nuclei. In Mr. Hutchinson's hands it certainly was a grand success. There was no robbing and no killing of queens, and all were just as fresh as when taken from the hive in which they were reared; and if there is any thing in the statement that it is bad to

BABY FERN.

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the honey-sac, not for the purpose of present digestion, but *possibly* to render it better for preservation, in order that it may be digested when the bee needs actual food in the true stomach to supply waste.

* Some time ago Mr. Hutchinson gave expression through his paper to the idea that, however well we might know our friends as bee-keepers, we like to know something of their home life, or how they live. I hope, therefore, I may be excused for giving this little peep into that most sacred of all places, a home. I shall give other peeps, perhaps.

take queens from the hive in the height of egg-laying, they are in better shape because their laying capacity is limited to the surface of two ordinary sections.

This plan was given in GLEANINGS for May 15, 1894, page 407; and in the August *Review* Mr. Hutchinson writes of it as used in his apiary, as follows:

> Queens in large numbers are now being kept in the *Review* apiary by means of the Atchley plan. An old-style Heddon super is divided into eight compartments, three unfinished sections and a caged queen placed in each compartment, and the super placed over a queenless colony. The bees rush up and cluster around the queen and between the sections. Just at dusk the super is placed upon a bottom-board having a raised rim around the outside, also strips across the center to correspond with the divisions in the case, and carried to a new stand in some shady secluded spot. Each little compartment is furnished with an entrance cut through the rim around the outside of the bottom-board. A piece of queen-excluding metal, with a single opening, is placed in each entrance. Each little hive is furnished with a separate cover, and over all is laid a flat board cover. The next day at dusk the queens are released. I have yet to have a queen killed in one of these little clusters. Robbers give no trouble whatever. It isn't that they do not find the hives, as I often see them "snooping" around them, but they seem to hesitate about crawling through the perforated metal when there is any opposition back of it. This plan keeps the queens in the best possible condition for shipment, and enables me to keep a stock of queens on hand all ready for immediate shipment.

I was very enthusiastic over this new method of keeping queens, and determined to put it into practice as soon as I arrived home, but somehow I did not get around to it; but it shall be tried next year — not to determine whether it will work, for I am satisfied of that already.

I might say, by way of parenthesis, that A. I. R. tried these small nuclei many years ago; but he was continually bothered by their being either robbed out, or else by their swarming out of their own will. But you see the Atchleys have overcome both difficulties by reducing the entrance to the size of a single hole of excluder zinc. This is large enough for the workers to pass in and out, but just small enough to make it risky for robbers to try to get through and get out alive. Well, suppose the little colony, or, better, little nucleus, decides to swarm. All right—let it swarm. The queen can not pass the metal, and they will come back. But even if they should fail to do this, there will be bees enough left to take care of the queen.

After talking over some of our experiences in the line of getting out bee-journals we repaired to the barn, where I had left my wheel, and prepared for another run. Lapeer, the home of R. L. Taylor, was about 20 miles due east; but it was over a road of Michigan sand. As soon as I heard this I decided to take a train, and wisely too. On arriving at Lapeer I found I had only two hours between trains, for it was necessary for me to go back to Flint in order that I might take another train that would carry me over the ocean of sand to Manistee, Mich. Mr. Taylor lives about a mile from the depot, I should judge. It did not take me long to find his home, a handsome residence near the outskirts of the town. I wheeled into the yard, and there I met Mr. Taylor reading his morning paper, comfortably seated in an easy-chair on the lawn.

I explained that there were only two hours between the trains. Grasping the situation at once, he proceeded to make the best of the time at my disposal. So, just before dinner we took a ramble over his fruit-farm. I was surprised to note the extent, variety, and perfection of the fruit that he was growing. How often we know bee-keepers *as* bee-keepers, but are entirely ignorant of the fact that they have made successes in other lines of rural industries! So in this case, I think our readers will be glad to know that Mr. Taylor is not only well up on the subject of bees, but in fruit-growing—that is, if I may judge from the old rule, "By their *fruits* ye shall know them."

Well, after we had taken a stroll over the farm, my eyes rested on some queer sort of pits in a side-hill in a little grove. "What do those pits mean?" Mr. Taylor smiled a little, and remarked that the previous owner was a spiritualist, and that he had been informed by the spirits that a quantity of treasure was buried somewhere in this hill-slope. The numerous pits that had been dug here and there, only to be abandoned, plainly attested that the digger fully believed that the spirits had told him the truth. But Mr. Taylor, it seems, instead of going crazy over the same idea, when he came into possession of the land, dug the wealth out of the soil by a far more rational method; i. e., in the production of fine crops by the "sweat of the brow."

After dinner we employed the short time that was left us, in the bee-shop and apiary. In the former, Mr. Taylor showed me crates of honey, individual sections of which contained various kinds of foundation. The object of the experiment was to determine what make and what weight would give the most honey per section or per crate. It was plainly evident that the Given, as could be seen from the bulged combs which had been built from that foundation, was ahead, and that the combs from the Van Deusen flat-bottom was quite a little behind the other grades. This was shown by the fact that the combs in the last named were scarcely ever built out even to the face of the sections. "Why," said I, "Mr. Taylor, this is worthy of being carefully photographed, because a photograph can not be prejudiced, nor can it mis-represent the facts." Mr. Taylor seems to have followed the suggestion, for a picture appears in the *Bee-keepers' Review* for September. Further reference will be made to this experiment, editorially, elsewhere.

We next turned our attention to foundation-fasteners and other fixings used in the apiary. Every thing about the shop betokened careful thought as to how labor in performing the various operations might be the most economically employed. He finally took his Bingham smoker and a large screwdriver, and was soon ready to look over the divisible-brood-chamber hives, the manipulation of which by Mr. T. I was very anxious to see.

As our readers know, he is a strong advocate of a capacity of eight frames—at least, for the Langstroth size; and when I fired the question at him again, he expressed himself as perfectly well satisfied with that size of brood-nest for the Langstroth frame. A glance over the apiary showed that there were a few old-style eight-frame Heddon hives still in use; but the great majority were of the divisible-brood-chamber type.

I then asked him whether he had seen any cases of dead brood in his yard. Yes, he had, and he very soon showed me some. We were speculating somewhat upon the difference between the dead brood that had visited some of the apiaries of late, and the ordinary virulent type of foul brood, when Mr. Taylor remarked:

"I think perhaps I have a sample of foul brood that we can look at."

"But," said I, "are you not afraid to open up the hives, now that the honey season is over, in the middle of the day?"

Foul brood had no terrors for him. He would just as soon have one or two cases in his yard, in order that he might study it. As he sells nothing in the way of bees or queens, the disease is not likely to get beyond his yard, nor, indeed, into the honey, considering the care with which he does every thing in the yard. Well, the marked difference between the foul brood and dead brood was, that the former was decidedly ropy. The latter looked very much like it, but lacked this one characteristic of ropiness—that is, that tenacious, sticky quality, that would cause the maturated mass, when perforated with a spear of grass, to adhere to the end of it as it is drawn out slowly, making a stringlike filament that breaks when drawn out an inch or so.

Mr. Taylor then showed me a hive that had shown traces of foul brood about a year ago. This he had left to its own devices to see what it would do. The disease would appear and then at times disappear. At the time of our inspection we found one or two diseased cells. This was an interesting case, as it illustrates how some colonies will resist the disease, without any serious effects.

Well, how about those Heddon divisible-brood-chamber hives? He handled them very expeditiously and easily, although they had been in use several seasons, I believe. After removing the cover, his next operation was to loosen as many frames as he cared to remove, by prying between the frames with the large screwdriver. Then the operation of withdrawing the frames was easy, and was done without any disturbance on the part of the bees; nor was there any bee killing, that I could discover. Mr. Taylor is not one of those who bubble all over with enthusiasm when he is pleased with any thing; but in his quiet way he seemed to be perfectly satisfied with the Heddon hive.

I forgot to ask him whether he had any difficulty, as some of us have had, in getting the bees to breed properly in two shallow brood-chambers—i. e., from one to the other. My own experience with shallow chambers, as well as that of some other bee-men whom I saw on this trip, who had tried similar arrangements, seemed to indicate that, while the bees would breed all right in one section, it required pressure and considerable coaxing to get them to enter the next one, either above or below. I remember, when Mr. Taylor removed the frames, that there seemed to be brood distributed in both sections of the hives. That being the case, perhaps he can tell why he has no trouble along that line, or how it may be obviated. Perhaps something may be due to the race of bees used. And that brings me to the Taylor bees. I was surprised to see how well-behaved they were, despite the fact that, in one instance (I believe for a test of their temper), he removed the cover with a snap; yet they did not seem to resent particularly this intrusion. "Why," said I, "Mr. Taylor, you can not do that with some of our hybrids, much less those that are nearly black." I am glad to know that they are well-behaved. But the principal reason why they are preferred, I believe, is because they shake readily from between the combs of the shallow brood-chamber, and thus render more feasible certain operations with this sort of hive.

The five-banders were about the meanest bees in point of temper and robbing disposition he had, or, I believe, ever had had. All the time that I was in the yard the yellow fellows were following us about; and even while we were at a considerable distance from the apiary, looking over the fruit-farm, an occasional five-bander would buzz about our heads.

While thus pleasantly engaged in the apiary, I noticed that I had only six or seven minutes to get to the depot. I was soon on the bicycle, and in a few minutes more was on the train again for Flint, there to change cars (for it was Saturday afternoon) for Manistee, Mich., the home of an aunt.

To be continued.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO, N.Y.

KEEPING QUEENS.

Question.—What is the best method of keeping laying queens while not in use in colonies?

Answer.—There are only two reasons which I know of, why a laying queen should be kept outside of a colony of bees, except in the case of shipping them, where sold to a customer, or transporting them from one apiary to another. This exception is covered quite thoroughly in all of our bee-papers, for there is scarcely a month goes by but that some one has something to say in regard to sending queens in the mails, etc., telling of the best cage, the best candy to use, the right number of bees to put with the queen, and so on. With me, I use the small Benton cages for the month of June, July, and August, where the queens do not have to go over 1000 miles, and invariably give each queen ten bees to accompany her. In all cages I use the Good candy, no matter where sent. For spring and fall, and where queens are going more than 1000 miles, but not farther away than the United States or Canada, I use a cage of the Benton pattern, but about three times as deep, and with the queen I send sixteen workers as companions. These workers are bees from six to ten days old, or those which have had their first cleansing flight, as bees which have not flown to empty themselves of the accumulations collecting through their larval period are not in condition to endure confinement to the best advantage. Worker-bees are best caught and selected when they have their heads in the cells taking honey, and bees of the age spoken of above are far more likely to take honey when the hive is being disturbed than are those either older or younger, so if the operator takes the bees that have their heads in the cells, loading with honey, upon the removal of the frames from the hive, he is not liable to be far out of the way in his selection of bees to ship as companions with a queen. Besides, such bees as have their sacs well filled with honey seem to stand the journey much better than bees taken with empty honey-sacs, as I have proven during the past ten or twelve years. My way of accounting for this is, that this honey taken with them helps them to moisten the sugar in the candy, so the candy is more readily used than where they have no honey to moisten it with; for it is a well-known fact with those who have fed candy to bees for wintering purposes, that, so long as honey remained in the hive, the candy would be moistened and used; but when the supply of honey gave out, the bees would often starve with plenty of candy within easy reach. Since I learned this fact, that bees filled with honey, when put into the shipping-cage, were more likely to go through in better shape than were a promiscuous selection, I have lost very few queens; and the past season has been one of unusual success, as only one queen out of every 164 sent out has been lost, so far as reports have come in. For shipping to foreign countries, I am still "at sea" regarding just what the cage should be. This year I have been placing a piece of dry worker-comb in each cage, from the fact that more queens are lost by being drowned or daubed, with the feed getting thin and running all over the inside of the cage and occupants, than from any other reason. This seems to come about by the dampness which accumulates on the candy while on the ocean, the mail-bags being crowded in some damp part of the ship. We all know that, where the bees are "at home" in their hives, they always store any sweet liquid found loose anywhere about the hive, in the combs; and as the queen and accompanying bees soon establish a "home" in the shipping-cage they are confined in, this dry comb will give them a place to store the liquid produced from the moisture coming in contact with their candy. More than this, it will allow the bees which have their sacs full of honey when put into the cage, to store that honey in this comb, instead of holding it in their sacs, and thus they are placed in as nearly a natural condition as possible while *en route* for foreign countries. I put in 30 bees to accompany the queen to foreign countries. But perhaps I have dwelt too long on the exception part of this matter; yet I did not see where to stop, and yet have it plain to the beginner. One of the other reasons for desiring to keep queens outside of the hive is, where we wish to take the reigning queen from a hive in order to introduce another, or take one from a nucleus to make room for cells which must be taken care of before they hatch. It is always well to preserve the old queen when we are trying to introduce another in her stead; for, should it happen that the queen which we are desirous should supplant the old one is lost in introducing, then we shall not be obliged to leave the colony queenless, as we have the old one on hand to give back to them; or we can give one of those taken from the nucleus, if preferred, to take the place of the lost one, if all these have not been sent off to customers. To keep such queens as last spoken of, I use two methods. One is, to put them in cages with accompanying bees, the same as for shipment, placing the cage where a temperature of from 60 to 70° can be maintained, as nearly as possible, for this temperature is conducive to the longest life of bees while in confinement in a cage outside of a hive; and the second is, to place the queen in a provisioned cage without any worker-bees with her, placing the cage over the frames of a nursing colony; or, where several are thus caged, by placing these cages in a frame made to fit a certain number, said frame to take the place of one of the frames in the hive. The one cage can be placed in a frame if it is thought better for the queen to be down among the bees, by making blank cages to fill the frame. Make as many blanks as your frame will take cages, and then when you have queens to put in, remove as many blanks as you have cages with queens in, and you are prepared at all times to accommodate as many or as few as may be desired. The nursing colonies are made up of five or six frames of hatching brood, and are kept well stocked with young bees, which are not permitted to have a laying queen while used as a nursing colony. My advice would be, not to keep any queen away from the bees or combs, where she can lay, for more than three weeks; for I believe longer confinement tends to the injury of the queen. The last reason for desiring to keep queens outside the hive is, the prevention of increase while securing a crop of comb. A large increase of bees and a crop of comb honey do not go together; and for this reason many of our best bee-keepers practice the removing of queens from the hives when the swarming season arrives, and in nine or ten days destroy all queen-cells and return the queens, when the bees are said to go at once into the sections, and no trouble with swarming results. While I do not fully indorse this plan, yet I have had the best of success in this way some years. In others the bees would contract the swarming fever later, and swarming became a source of annoyance to me. Where queens are to be kept for this purpose, I consider it best to take her out with a frame of bees and hatching brood, putting the frame of brood into a nucleus hive above or close beside the old hive till wanted back, when she is easily replaced by setting the frame back.

[One of the best methods of keeping a queen while out of the hive is the Atchley plan of using very small nuclei, containing one or two sections, with an entrance consisting of only one perforation of excluder zinc. The plan is described in full in another column in Notes of Bicycle Travel.—Ed.]

Heads of Grain, from Different Fields

A CORRECTION.

In my article in Gleanings for Sept. 15, on "Work in the Apiary," I find a couple of errors, the correction of which will give a better understanding of my meaning. P. 721, 2d column, 15th line, "No. 2" should be *No. 72*. In the concluding paragraph you make me say . . . . "I have several times forgotten the stopper for a few minutes, or until I needed it the next time." In the "copy" I wrote "or until I needed it *at the next hive.*" "The next hive" may be only a few steps away. "The next time" *may* be next day or next week, which would prove rather disastrous to the colony where the entrance-stopper was left.

Wm. Muth-Rasmussen.

Independence, Cal., Sept. 28.

STATISTICS.

Alabama.—"Sorry."

Arizona.—Very good. Mr. Gregg gets 25,980 lbs., 200 colonies.

California. — New Rosedale, extraordinary; one apiary of 300 colonies averages 150 lbs.; good in Sierra Co.; at Independence, very poor.

Colorado.—Very favorable at Las Animas, 85 colonies giving 5000 lbs., 3000 of it comb; at Fort Morgan, Aug. 27, there was a big crop, and still coming.

Florida.—Very good at Vero, 50 colonies giving 10,000 lbs., one colony giving 450 lbs. extracted; poor at Wewahitchka.

Georgia.—Very good in the northwest part.

Illinois.—Favorable at Osage; bees "down" at Jerseyville.

Iowa.—August reports are all bad; much better in September.

Kansas.—Failure.

Maine.—"Best we ever knew," etc.

Maryland.—Very good in Garrett Co.; poor in Queen Anne's Co.

Michigan.--Very poor in Hillsdale Co.

Minnesota.—Two report good, one bad.

Mississippi.—One bad report.

Missouri —Aug. 20, very poor.

New Mexico.—First failure in 12 years.

New York.—Five report favorable, two not. Julius Hoffman reports "poor in quantity and quality."

Ohio.—Both extremes are reported.

Pennsylvania.—Good from buckwheat in Juniata Co., Aug. 21.

Texas.—Two report good, one bad.

Utah.—Very unfavorable.

Virginia.—"Poorest season in 20 years," one reports.

Washington.—Best in 15 years at Elberton; very poor at Mossy Rock; fair at Port Angeles.

Wisconsin.--Two good reports, but generally rather bad.

[As the reports above were written somewhat later than those given Sept. 1, we see a decided improvement after the drouth was broken the first week in September. In some respects it has been a year of great extremes in regard to rain, and, consequently, as affecting the flow of nectar.—Ed.]

RIDING A BICYCLE; SOME QUESTIONS FROM PROF. LAZENBY, OF THE OHIO STATE UNIVERSITY.

Mr. Root:—I read with equal pleasure and profit your notes in Gleanings, especially your reports of long-distance rides on the bicycle. I should like to ask you a few questions.

1. Does riding a wheel demand so much attention that one can not observe with satisfaction, or follow a continuous line of thought?

2. How does the use of the bicycle affect your walking? Does it lessen your inclination or pleasure in this exercise?

3. Do you sit perfectly upright on your wheel, or do you adopt the common spider or racing position? If you use low handle-bars, and bend forward, do you regard it as injurious? Do the advantages of such a position overbalance the disadvantages?

I have never used a wheel, but am thinking of doing so. Before beginning I desire more light on the above points. I believe I realize the advantages of the bicycle. They are many and evident. The disadvantages are not so evident, and I should like to know what they are. WILLIAM R. LAZENBY.

Columbus, O., Sept. 3.

[1. While learning to ride, it usually takes about all the beginner's attention to keep his seat and stay in the road; but in a very little time it becomes a sort of involuntary work, like walking; and the most of my work for GLEANINGS is planned while riding. In fact, I sometimes go into a deep study over some problem, and ride miles without noticing very much of the country I am going through, unless something unusual wakes me up.

2. The use of the wheel certainly makes one feel more like walking; and I often enjoy walking beside my wheel, up a long hill, as a change. When I overtake a friend who goes along with me for a piece, I usually walk, for it is difficult to ride the wheel slow enough to keep pace with one on foot. I enjoy walking for a change, and afterward I enjoy the wheel again for a change.

3. I always sit upright, unless it is during a high wind or when climbing a long steep hill. While the bent-over position is certainly very much of a notion, there are some circumstances in favor of it when one wishes to make the greatest speed possible. The principal one is that to which I have already alluded, offering less resistance to the air, especially when the wind is against you. I do not know how any one can, from choice, adopt a bent-over posture any more in riding than he would in walking or sitting down. So far as my observation goes, it is mostly the boys who ride bent over, and those who seem to ride only to make great speed. Where one rides for the pleasure of it, to see the country and to study nature, as I do, he certainly will prefer to sit upright.—A. I. R.]

By ER Root
Editorial

SINCE I have discarded that editorial "we," somehow I feel more natural.

IT is reported that foul brood is raging badly in Hunterdon Co., N. J. By the way, localities where foul brood is prevalent should be known, it seems to me.

REPORTS are beginning to agree that the most effective remedy for the cure of bee-paralysis is the removal of the queen. In the worst cases, nothing seems to do any good.

BEE-KEEPING IN ONTARIO.

FOR at least once, the bee-keepers have a fair show at the hands of the press. The *Toronto Globe* for Aug. 25 devotes about two pages to honey and bees, illustrated by over a dozen large and fine views. Among those representing bee-men we notice those of A. Pickett, R. F. Holtermann, Wm. McEvoy, Wm. Couse, and Martin Emigh. The subject-matter treats of the number of hives in Canada and other countries; honey—its source and peculiarities; how to secure it; hives and their construction, etc. The remarks on fertilization, with illustrations, are excellent. I am glad to see this new departure, not only in journalism, but on the part of the bee-keepers themselves, in rendering such matter available to our large dailies. Are not the bee-men themselves to blame in not furnishing more apicultural facts to their local papers instead of confining them to the bee-journals? Let the good work go on; and I am not at all sorry that our Canadian friends have "set the initiative."

PERCOLATOR FEEDERS; MAKING SYRUP IN LARGE PERCOLATOR CANS, SYRUP TO BE FED IN THE ORDINARY WAY.

WE have been continuing in the use of the crock percolator, as described on page 769. They are still working nicely; but to test this plan further, we have been trying it with different kinds of receptacles. Where we desire to feed the colony up with one feed, or, at most, with two, the two-gallon crock is a little too large and unwieldy to be handled easily, for the crock itself forms no inconsiderable part of the weight. Looking over our counter store, my eyes lit upon some sap-pails.* "There," said I, "here is just the thing." These were filled with sugar and water, half and half, and then a shallow cake-pan was set over, with three or four thicknesses of cheese-cloth between. The whole was then inverted. But the flaring edge of the cake-pan fitted so close to the rim of the pail that it took the bees five or six days to get the feed out. This would be all right ordinarily; but as it was getting to be a little late we desired to feed a little more rapidly. Instead of the cake-pan we finally substituted square pine boards ⅞ thick, just large enough to cover the pail. These would warp enough to let the air through the cloth, and consequently the feed would run out the more rapidly. These the bees empty in from one to two days, and are then ready for another feed. The fact that the board is warped a trifle does no harm; but it should be stated that the crocks or pails, whichever are used should be filled level full of sugar and water, otherwise the slight amount of air will allow some of the water to run out before it has incorporated the requisite amount of sugar.

COLD-WATER SYRUP; B. TAYLOR'S PLAN.

Well, it was getting so late that we thought it inadvisable to continue the percolator feeders on the hives much longer, inasmuch as the syrup as fed was in the proportion of half sugar and half water—too thin for late feeding. Disliking to make syrup in the old-fashioned way (heating it and stirring it an hour or two to get the sugar thoroughly dissolved), I thought I would try the percolator plan, as it was said this syrup would not granulate, and would be of the proper consistency for late feeding in ordinary Miller feeders. Our neighbor, Vernon Burt, told me that he had used the plan described by R. L. Taylor, with entire success; that his whole apiary of 180 colonies had been fed without heating an ounce of syrup. The plan that R. L. Taylor described was given in Gleanings, page 496.

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*Of course, those with holes near the top rim for the sap-spile will not answer.

Briefly stated, it consisted of an ordinary Dadant uncapping-can. As most of you know, it is simply one can set on top of another—the top can having a false bottom of wire cloth, and properly stayed to hold up the center. Over this false bottom Mr. Taylor laid over three thicknesses of old bed-blanket, carefully tucking it around the edges. On to this he poured the sugar and water, and, in his own language, the result was all he could desire; for all he had to do was to keep the top can supplied, and draw off the clear limpid syrup from the can below. Of course, I naturally concluded that, if Mr. Burt and Mr. Taylor could make a success of this, we could. In the first place, flannel is rather expensive, so I told our apiarist to take six or eight thicknesses of cheese-cloth and put them into the bottom of the can. The sugar and water were put into the top can, and I eagerly awaited results, when, much to my disappointment, the syrup drained through but little better than sweetened water, and five pailfuls in only two hours. It ought to have taken about ten. It was drained off, and returned to the top can. The result was nearly the same, except that the syrup was a little thicker. Well, thought I, the trouble lies in the cheese-cloth. The sugar was taken out, and over this were put three thicknesses of new flannel. Again the results were not much more satisfactory. Three thicknesses of heavy white felt were then substituted, and still the syrup was too thin. At last, in desperation I went down to Mr. Burt's, and asked him where my trouble was. He could not tell. He had used *old* flannel, and got good thick syrup. Well, I have not yet found the "nigger in the woodpile," unless there is something in the fact that old flannel, which has been used, is more fuzzy, and consequently more impervious to the rapid escape of the syrup. As a last resort, we cleaned out all the sugar, leaving nothing but the felt. Over this was deposited very evenly cotton batting, about an inch thick, and over all one thickness of muslin. We then poured in the sugar and water as before, and next morning I had the satisfaction of seeing good thick syrup—that which registered 45 on the hydrometer scale used by maple-syrup makers to determine when the syrup is thick enough; but after drawing off the first pailful or two the syrup became thinner; and, to cap it all, the thing wouldn't percolate at all. We finally removed the felt, spread over the bottom a thickness of muslin; over this an inch of cotton batting, and then covered it with another thickness of muslin. Results: This combination is working finely; and, although we haven't found the "nigger" in the flannel, we have something better.

I have gone into details to prevent others from making the same mistakes we did.

I may explain to our readers that a hydrometer is a delicate instrument of blown glass, with a graduated scale. It is a very convenient implement for showing the thickness of honey or syrup for feeding. Maple-syrup makers tell me that the scale that they use is 32. This makes about 11 lbs. to the gallon, or about the usual thickness of ordinary extracted honey. They can be had at almost any hardware store; or if you can not get them near home we can furnish them for 35 cts.; postage 3 cts.

Later.—Since writing the foregoing I have learned from Mrs. E. R. that new unwashed flannel will let water go though it like a sieve; but after it has been used a while the woof, or web, becomes more dense. I asked her *how* she knew. She hesitated a minute, and said that *new* baby-diapers, unwashed, are not very serviceable until they have been through the laundrying process a few times. Our readers will pardon this allusion, for nothing but false modesty would object to it. The illustration is a good one, and explains why I had trouble with *new* cotton flannel letting the syrup through too fast, and why B. Taylor and Mr. Burt, using *old* flannel and *old* bed-blankets, had entire success. The "nigger" is found at last.

ROLLED VS. GIVEN PRESSED FOUNDATION; FLAT-BOTTOM FOUNDATION; HEAVY CELL-WALLS AND FAT COMBS.

Reference is made in Bicycle Notes, in another column, to the experiment of R. L. Taylor, as reported and illustrated by a half-tone engraving in the *Bee-keepers' Review* for September. We have been experimenting a little with different weights of foundation during the past summer, and perhaps I can throw a little light on some of the results. Well, these results show that the "fattest" combs, if I may use the expression, were built from Given foundation; that the next fattest were from wax sheets sheeted for roller mills, but actually embossed or worked in the Given press. The next in order seems to be the Hunt foundation made on a Root mill. The rest of the results I have been unable to compare, any more than to state that the VanDeusen shows the "leanest" combs, to carry out the analogy, of all the foundations used. Mr. Taylor, concluding, says, first, that the quality of the wax in its original characteristics, or in the method of its manipulation, cuts a considerable figure; and, secondly, that either the kind of machine used in making foundation greatly affects its value; or, thirdly, that heavy foundation has a decided advantage over light. Mr. Taylor's third and last supposition, I think, is nearer the truth than the second, as I shall presently try to show.

Now, the various foundations above mentioned vary quite a little in the number of feet per pound. The VanDeusen (and this gives the leanest combs) was a trifle the lightest, being 14.22 feet per lb. The Dadant stood 14.21 feet per lb.; the Root, 13.75; the Given, only 9.91; while the Given-Hunt—Hunt sheets worked on a Given press—was 9.37. Now, if you will look again over these figures you will see that the Given and Given-Hunt, both made on the Given press, were quite a little the heaviest foundation used; and it was these sheets that gave the fattest combs. The fatness of the comb in the case of the other makes of foundation, in like manner, seems to vary somewhat according to the weights; that is, the lighter the foundation the leaner the comb, and *vice versa*. The figures do not show this to be strictly so, but strongly enough to show which way the wind blows.

A few months ago reports were given showing that the Given foundation seemed to be more readily accepted by the bees—in fact, very largely substantiating the facts above given; but it should be understood that the Given foundation, made between two flat plates, was a heavier grade—not heavier foundation septa, or bases, but far heavier foundation walls. I did not realize there was so great a difference between the cell-walls of the Given-press foundation and that made on the rolls until a Given press was sent us for experimental purposes. In fact, the walls were so heavy that the foundation looked more like sheets of wax with small hexagonal holes dented in equally distant from each other. It then occurred to me for the first time that it was not so much the *method* of embossing the sheets as it was the kind of dies, or punches, used in making the *cell-walls*.

I took a sample of the Given press foundation to our Mr. Washburn, and asked him to make punches that would make roller foundation like the sample, or very near it. He did so, and the foundation in every respect *seemed* to be as soft as that made on the Given. A test in the hive also seemed to show that bees regarded it in like manner. Of course, the foundation with heavy side-walls, with the same bases, or septa, will be heavier; and, also, the wax in these walls, not having been subjected to the same pressure as the wax in thinner walls, will be softer; therefore it follows that it will be worked by the bees the quickest; and such combs, being started first, will maintain their advantage, and be fattest in the end.

But right here it seems to me we run against a stump—or, at least, I fear there is danger of it. Will not those combs built from the heavy foundation, or, rather, that having heavy side-walls, show very objectionable "fishbone"? The VanDeusen foundation, which seems to have the poorest showing in the hive, may, when actually in the mouth of the consumer, have the best showing. The VanDeusens have advertised, as a special feature of their wax, that it had no "fishbone." How far this is true, I do not know from experience; but I do do know that there is no perceptible fishbone in the very light grades of foundation used by the Dadants, Hunt, and ourselves. If manufacturers should agree uniformly to make their surplus foundation with heavier walls—that which has given, according to the experiments of Mr. Taylor, fatter combs—consumers would object to it as not being like the honey of their fathers, and in time they would refuse to buy it, on the false assumption that it was manufactured, and therefore not real honey. As foundation-makers, we prefer to make our thin surplus just as it has been made.

In conclusion, let me say that I do not question the correctness of Mr. Taylor's experiments in the least. I accept them as actual facts, for I saw the combs myself while at his place this summer.

DEATH OF CHESHIRE.

JUST as we go to press we are pained to learn, through the *British Bee Journal*, of the death of Frank R. Cheshire, one of the most brilliant bee-keepers that England, or, indeed, the world, has ever produced. His work, "Bees and Bee-keeping," in two volumes, will stand as a monument to his memory long after his death. Probably there has never been any thing printed in the English language, in the way of scientific bee-literature at least, that is the equal of them. The evidence of painstaking research and careful study on the part of the author shines forth on every page. The presswork and the beautiful engravings, many of them from hand-drawings by Mr. Cheshire, and hence their correctness, are works of art. Friend C. was severe in some of his criticisms—perhaps unjustly so in a few instances; but, taking his works as a whole, bee-keepers for years to come will hold his name in grateful remembrance for throwing new light upon many subjects upon which there had been gross ignorance or misconception. It seems that he "died on the 16th of September, while undergoing an operation for a painful internal malady from which he had suffered for some time." We all unite most heartily with the *British Bee Journal* in "tendering to his widow and family our warmest sympathy in their bereavement." We may be able to give a further biographical sketch, accompanied by a portrait, later on.

CONVENTION NOTICES.

The County Bee Association will meet at the Tarbel House, Montrose, Pa., Oct. 25, at 10 A.M., for the election of officers, and any other business that may come before the meeting. All interested are invited. H. M. SEELEY, Sec., Harford, Pa.

The Illinois State Bee-keepers' Association will hold its regular annual meeting at the Statehouse, Springfield, Nov. 13 and 14, 1894. This change in the time has been made in order to secure reduced railroad rates of 1⅛ fare for the round trip. The National and State Granges both meet at the same time and place, and arrangements are made for the same person to sign all the certificates, which must be asked for when the ticket is purchased. Hotel rates will also be secured.

JAS. A. STONE, Sec., Bradfordton, Ill.

NOTES OF TRAVEL

BY A. I. ROOT.

ON THE WHEEL—CONTINUED FROM LAST ISSUE.

When near Lima I saw some pumping-wells very close to the graveled road, and I stopped to investigate a little. As I started to go near the tanks, where the well was being pumped, I saw a man at a distance walking toward me. Thinking that, perhaps, they did not like to have visitors around unattended, I turned my wheel and ran down to meet him. He said they were quite willing to receive visitors, and show them around; but he felt a little anxious about having strangers go around alone. Only a week before, while standing on the top of a tank watching the oil and gas as they came together out of the pipe, a visitor, before he knew it, took a match out of his pocket, and proceeded to scratch it to light his cigar. Both the smell and peculiar vapor indicated that gas was all around them, and a terrible explosion would have ensued. What does ail people to make them so stupid? No wonder that men who have this kind of property in charge get short and crusty. After a very pleasant visit, just as I was going I learned there was a bee-keeper in the neighboring town of Cridersville who would give almost any thing to see A. I. Root. I had passed the town, however, and it was considerably off the road, so I decided I could not go back. When I came near to the city of Lima I was almost speechless with astonishment and wonder at the vast iron tanks scattered thickly for miles in every direction. Why, it seemed to me as if all the world could not use so much oil. Around each tank was an embankment of earth to hold the oil in case the tank should burst. I finally became so curious that I asked a workman, who was doing something to one of the tanks close to the road, if he had time to answer a few Yankee questions. He replied, "No, sir; I have not a minute to spare."

"But you can surely tell me about how much each of these large tanks holds."

"I do not know how much they hold."

"Well, excuse me, my good friend, in asking one more question, and then I will go away. What caused this terrible wreck and blackened remains just across the way?"

"Two of the tanks got afire."

Now, I wanted awfully to ask what set them afire, but I thought I would let him see I was true to my promise, even if I was a Yankee. As I wheeled along I said to myself, "Well, I will just go and hunt up a bee-keeper somewhere in this city; and if he will not tell me all I want to know, it will be funny indeed."

I wheeled into the suburbs of the town, and found a man beside the street, talking to one in a buggy. I turned up, sprang off my wheel, and commenced:

"Gentlemen, can either of you tell me where I can find a man who keeps bees or produces honey, anywhere in this neighborhood?"

The man in the buggy looked a little curious as he replied:

"Well, stranger, I think you have hit me exactly."

"And what is your name?" said I.

"G. A. Matteson, of Cridersville, O."

Then it was my turn to smile, and I said, "I am A. I. Root, of Medina."

You should have seen him start at the name.

"Well, I declare! is it possible, Mr. Root, that you have actually come on your wheel so near my own home? I do not know how many times I have longed to see you and have a visit."

Friend Matteson not only answered all my questions about the tanks and wells, but he took his horse and buggy, and carried me over to a well that was just being drilled. The tanks that were burned up had been struck by lightning a few weeks before. The great light given by this huge bonfire was visible after dark for 100 miles in every direction. In order to save the valuable material composing the tank they fired cannon-balls through its iron sides down near the bottom, and let the oil burn up inside of the dam that I have mentioned before. You see, these dams are absolutely essential in order to prevent the fire from running from one tank to the next; and the tanks are placed just far enough apart so that one can burn up without endangering its neighbor. Each tank holds about 35,000 barrels, and there are probably 500 or more of these huge reservoirs in the vicinity of Lima. They are the property of the Standard Oil Co.

As it was coming on night, I inquired my way to Bluffton, the nearest station on one of the railroads passing through Medina. Friend Matteson called to somebody he knew, to direct me where to take the right road out of the city. This individual happened to be one of the kind who can not tell any thing without getting in a good many hard words. A bystander presumed to dispute his ability to direct, and then the strong adjectives just boiled out from his mouth. I told him, as pleasantly as I could, that I would rather get lost than to hear so much bad talk. It wound him up suddenly, and I feared I had offended him. The rest began laughing at his discomfiture, and he was silent for a moment. I felt anxious, for I feared he might turn on them and swear worse; but to my surprise he spoke something like this:

"Look here, boys, the road is a crooked one; and a stranger, especially so near night, when he is in a hurry, might find difficulty in getting on the right track. I am going along with him to show him the way."

You see, he was a wheelman as well as myself. We chatted pleasantly on the way, and there was no more rude talk, I assure you. Then the words of the chorus of that beautiful hymn burst forth in my mind once more:

Oh glorious victory, that overcomes the world!

Pretty soon I was riding again after dark, in a strange country. Worse still, the recent rains had made quite a few bad mud-holes and muddy places. I found my little bell of much service, especially when I came up behind vehicles and passed them. It is only of late that I have used a bell; but I think I shall never want to ride much again without one. I never use it to ask folks to get out of my way, or in a way that they might think it was my intention; but when going up behind a team, a light touch of the bell admonishes the driver to gather up his lines and hold his horses from shying, as they might do if a wheelman should pass at any tolerable speed.

Between seven and eight o'clock I found a little town where my conductor told me I had better stop over night. The bell was ringing at the little church, and I soon found myself among a lot of Sunday-school children. They had met to practice for a coming entertainment. At the hotel where I stopped I was greatly pleased to hear the landlord ask a blessing before the morning meal. As there were quite a number of children in the family, they had their own breakfast in an apartment separate from the dining-room for the guests; but I could hear the words of the father, even through the closed door; and it rejoiced my heart to know that there are at least a few hotel-keepers who hold fast to the good old custom of acknowledging the great God above, before the whole family, when commencing the duties of the day.

At Bluffton I had a most excellent visit with our friend Frank Eaton, known to many of the readers of GLEANINGS. He has a store in the town, where he sells and repairs wheels; so we had many things in common to talk over while we visited one of the oil-wells in the vicinity, where they have recently commenced pumping. Right in the town I noticed a well where many people were coming continually for a drink of water. Friend Eaton told me that it was an artesian well, drilled at considerable expense by a brother of his who is a Prohibitionist. The water has a slightly sulphurous taste, and reminded me of the beautiful fountain near the reservoir, and of the water at Green Springs. The people find it very wholesome, and agreeable to the taste, and it is largely and continually patronized. Now, friends, we have here a kind of temperance sentiment that bears practical fruit. It will always be a pleasure for me to clasp hands with any man or woman, no matter what creed or profession, so long as that belief runs into such practical work as furnishing convenient drinking-places for thirsty people.

Before I close I wish to say that the day I rode from Covington to Beaver Dam, a distance of 70 miles, the longest ride I ever made in one day, was one of the happiest days of my life. I really do not remember a day in my boyhood so brimful of enjoyment and thanksgiving to God as this one day; and it came about—at least a good deal—in starting out right. Had I not attended that prayer-meeting in Covington the evening before, I should not have felt so full of thanksgiving and praise—so full of "peace on earth, good will to men." By the way, this thought brings to mind one of the little cards that we have been furnishing free of charge for many years past, and expect to for years to come. Now, this little card would be especially appropriate to the wheel-riders of the present day—that is, if none of them will take offense if I should hand it to them. It reads:

A Sabbath well spent brings a week of content,
And strength for the work of to-morrow;
But a Sabbath profaned, what'er may be gained,
Is a certain forerunner of sorrow.

THE WONDERFUL SPRINGS OF CASTALIA, ERIE CO., OHIO.

On the 26th of September the boys kindly granted your humble servant another leave of absence, and I was soon flying westward. As H. R. Boardman's lay right on my route I made first for his place, making 37 miles in three hours and a half. Finding he was in attendance at the Norwalk street-fair I followed on. I wish, however, to mention one little circumstance that happened on the trip. I overtook a man driving a pretty fast horse; but as the speed that I was making was a little more than his own, and it was a little dusty, I passed him. He seemed displeased at this, and made frantic efforts to overtake me. As usual, however, he soon decided that he would have to give it up. About this time a man with a sulky overtook him. The latter horse was probably a trotter. The two talked together a little, and then the trotter came up behind me at a pretty good speed. When I heard a horse's hoofs behind me I increased my speed a little more, for there was no good reason why I should follow behind him in the dust. He seemed determined, however, to get ahead, and pretty soon his horse was in a gallop, and puffing and foaming. I just began to decide, that, as a member of the Humane Society, I had no right to be cruel to the poor horse, and was going to let him pass; but then I discovered I was only half a mile from friend Boardman's, and I thought his horse would stand it for half a mile, any way; so we came into the little town of East Townsend a flying. When I swung up among the bee-hives he seemed a little astonished. May be he thought I was crowded so hard I took refuge by making believe I wanted to stop there. As nearly as I can gather, horsemen are feeling a little jealous of the wheels; and perhaps farmers who raise blooded stock, as a natural consequence look upon wheels with disfavor. Liverymen may feel, in the same way, that it is cutting off their gains. I am sorry for this, and I think we wheelmen should do all in our power to discourage it. May be it is a Christian duty to ride in the dust sometimes; but it seems a little hard when the wheel itself ordinarily makes no dust, or next to none, and no horse and buggy is ever hindered in speed because of a wheel just ahead of them. I am sorry for this unpleasant feeling, and I think we should do all in our power to avoid it. Frank H. Eaton mentioned the matter, and he said he had known farmers who seemed so bitter against wheels that they would crowd them out of the road whenever a chance offered. Later on, however, when this same farmer's *boy* got a wheel of his own, it made a wonderful difference in things.

This street-fair that I mentioned seems to be something new. The principal streets of the town are, for the time being, vacated—swept up beautifully clean, and fenced off—that is, so far as vehicles are concerned. Then the business men of the town erect booths, and make a display of their goods, right out in the middle of the street. Of course, such fairs are held only in towns having paved streets. As there is no admission fee, a very large crowd gathers. There is no horse-racing whatever; and this fact, together with no admittance fee, is strongly urged as a reason why people should attend. In the afternoon, and perhaps evening also, a procession passes through the street—the barricade being for the time removed. The procession in Norwalk was about half a mile long. It was something after the fashion of the *Mardi Gras* in New Orleans. Every trade, industry, and manufacture in the town is mounted on wheels. A hardware man made a very pretty display with chain pumps, the galvanized iron chain furnishing the trimmings. A drygoods man exhibited a little schooner drawn by horses. The sails of the schooner were made of table-spreads, bed-spreads, etc. The whole thing was beautifully decorated with napkins daintily pinned on. It looked like a great white bird with wings spread. A printing-office, with compositors at work, and pressmen printing circulars, which were scattered in the crowd, was another feature. A baker with all his help made bread and cakes as his establishment passed along through the streets, and so on with all the other industries. So far the whole thing seemed to be a pleasant social and educational arrangement. Please pardon me, however, if I mention some things that it seemed to me were not educational in the right direction. A cigar-maker also exhibited *his* industry, and cigars were twisted up and tossed out to boys or men, or whoever might chance to get them first, and the work was done by women at that! A tobacco-dealer, in like manner, tossed out small samples of tobacco. Friend Boardman asked the question whether, if these schoolboys who ran for the samples of tobacco and cigars thereby learned to use the weed, there would not be here a flagrant transgression of the laws of the State of Ohio, and that right out in open day, at a public gathering. Let me digress a minute. Friend Boardman once used tobacco himself. Yes, he was such a slave to it that his hands trembled so it was difficult for him to even write his own name without having the jagged lines exhibit the terrible raid the poison was making on his system. That was 25 years ago, however. Friend B. debated the matter alone. As the tempter drew the chains stronger and tighter, he questioned: "Is it *I* who decide these matters, or is it an artificial appetite that has enslaved me for the rest of my life?" He marched to the door and gave his tobacco a fierce fling, and declared he would be free. He fought the good fight, and came out victorious; and as he told the story he held out his hand to show me that his nerves were as firm and steady as cast iron, and yet he is now a little past 60 years of age.

As the sun began to decline I told the friends I would have to hurry on, as I wished to reach Castalia before night. With the aid of beautiful fine graveled roads, I reached the place between four and five. All the way, you may be sure, I was studying the lay of the land, etc. For miles around Castalia the ground is thickly strewn with thin flat stones. In fact, these were picked up and piled up so as to make a smooth solid wall; and these walls, in many places, take the place of fences. Before the ground can be worked, these flat stones must be picked out and carried out of the way; and this material when pounded up makes the most beautiful roads, providing the last finish on top is made of fine gravel, which is to be found occasionally.

Right around the Castalia springs, in addition to these flat stones, we have a queer formation that looks a good deal like a sponge. It is limestone, and it is supposed that these strange springs have something to do with it. The spongy limestone is gathered up and shipped off on the cars. There is also quite an industry in digging out marl for the manufacture of cement. This marl is found perhaps two or three feet below the surface. The spongy limestone is used by blast-furnaces in refining iron, and it is also used in paper-mills in some way in the manufacture of paper. You may remember I passed through the town once before. I crossed what I called a little millpond, covered over with thick green scum. Had I looked at the water right over the side of the bridge, I should never have passed through Castalia as I did. Between the fragments of this green scum or moss is the purest and most beautiful spring water to be found on the face of the earth. Every pebble can be seen clear to the bottom, even if that bottom be thirty or forty feet deep. There is no discoloration of the water anywhere. The stones and pebbles that line the side of the pond never look muddy and chalky from sediment left by evaporation. Every thing is changed here at Castalia. It makes one think of that first verse in the last chapter of the Bible:

> And he showed me a pure river of water of life, clear as crystal, proceeding out of the throne of God and of the Lamb.

What at first seems to be a green scum on this little pond or lake that reaches clear through the town of Castalia, is, on close inspection, found to be a queer sort of vegetation, or broken fragments of a kind of seaweed. The crystal waters of this pond emanate from four immense springs. These springs unitedly form what might be called a rapidly moving millrace; and, in fact, mills have, in former times, been carried by just the water from these springs. Right on the edge of this crystal pond is the home of Mr. Robert Barrell, and toward a hundred hives stand almost on the water's edge. I shall always be greatly indebted to Mr. B. and his family for the courtesies extended to me. We took a boat and pushed right through the moss, over the waters of the pond. If you look straight down over the side of the boat there seems to be quite a depth of water; but as you look off obliquely, the refraction makes it seem as if the boat stood over a deep pit, the bottom rising up all around you; but this bottom is almost everywhere pretty well covered with this strange seaweed, or moss. As these great springs keep a temperature at almost the same point, winter and summer, the vegetation seems to go on uninterruptedly. Near the springs, however, the plants seem to change some—probably owing to the great coolness of the water. Each spring is a deep pit with steep sloping sides. During the lapse of ages, different things have been thrown into these springs; but in each one of them one can see away down in the depths the mouth, or "crater," I should call it, from which the water issues. Soundings have been taken by letting down weights attached to a line, as deep as 70 feet, and some say much deeper, without striking any bottom. It seems strange that the water-passage should be straight down in the earth to such an extent that a line can be dropped this distance. The bottom is much like that in Green Springs. The mosses, and perhaps the influences of chemicals, have decorated the rocks and soil with bright many-hued colors; and right around the springs the moss in some places looks like beautiful silky auburn hair. The scum on the top of the pond is probably caused by bits of moss breaking off and floating to the surface. Friend Barrell says that, in the spring, before natural pollen, the bees pack large quantities of this substance on their legs, like pollen, and carry it to their hives for brood-rearing. Below the pond the water is conducted in a swift-moving stream close to the main street or corners of the town. Here it flows over a pebbly bed made mostly of broken limestone. If you have any fondness for babbling brooks of crystal purity it will pay you to go a hundred miles to visit Castalia. The sight of that stream of water, right in the heart of the town, rippling over its gravelly bed, seems like enchantment. One stops to wonder how it can be possible that this water can be so clear and pure and clean, with dusty streets so near by. In fact, it has a look as if there were something supernatural about it.

Perhaps I should explain here, that a company of anglers have formed a club, and purchased not only the springs, but the land adjoining the stream for several miles—in fact, from Castalia clear to where the waters enter Lake Erie. The whole stream has been beautified and fitted up with green banks, beautiful lawns, shading-places, or bridges, for the fish to dart under; and last, but not least, the waters have been stocked with speckled trout from away down east. The spring water suits them to a T. One can see them by the hundreds, darting about almost with the swiftness of light, moving under these shades, or bridges, as spectators come near. Of course, this rich company monopolizes the fishing. Not a schoolboy in the town of Castalia dares throw a "pin hook" into the stream or into the pond. Mr. Barrell says that, if he should stand in his own dooryard, and toss a line out into the water, he would suffer fine and perhaps imprisonment, so strictly are the laws enforced by this club. One is inclined to remonstrate at this state of affairs; but this company of fishers paid the price of the land, and it is all their property, even the pond right in the middle of the town, as much as your farm or dooryard is your own property. There are a dozen or more springs in and around Castalia; and some of them are fitted up in most beautiful shape by the angling company. The fine grounds are plainly visible to travelers in passing through Castalia on either of their two railroads—Cleveland, Cincinnati, Chicago & St. Louis, or the Lake Erie & Western. The water is deliciously cool, and one would almost call it pure soft water, judging by the taste. I am told, however, that it contains some chemicals that prevent it from making suds with soap; but it seems as if one could scarcely ask for finer or colder drinking-water. As this location is considerably above the waters of Lake Erie, it has always been a mystery as to where the water starts. A traveling man told me, however, that on some very high ground near Bellevue, O., there was a place where a considerable stream of water ran into a hole in the ground and disappeared. This, of course, is many miles away from Castalia. If this is the same water, nature has managed to filter and purify it, and cool it, in a way that man might be glad to imitate if money could be made to do it.

The Castalian springs were pretty well looked over before dark, on the day I left home. Next day friend Barrell kindly took me with his buggy to the borders of Lake Erie, about four miles from Castalia, on to a piece of rising ground which has been called, for many years, Mustcash. A grape-grower by the name of C. Q. Martin has established a beautiful peach-orchard and vineyard on this hill. An opening near where his home stands enabled him to discover crevices in the rocks, whereby he could go down about thirty or forty feet. At this depth he discovered water having the same crystalline transparency as the Castalian waters, and, besides that, being almost perfectly pure. This water will form a suds, and wash beautifully. The temperature is 44 degrees—about 6 degrees lower than the water of any wells or springs to be found elsewhere in the United States. The water stands at a uniform depth all through the hill. If it could be pumped out, there would probably be more caverns to explore. The waters have obtained such a reputation, that, two or three years ago, a company was formed, and a large shaft was sunk from the top of the hill clear down to the water. A beautiful engine, 40 H. P., is placed at the bottom of this shaft; and the steam-pump sends a constant stream of water through a six-inch pipe to the city of Sandusky, about seven miles away. The water is then carried about the streets of Sandusky daily, and sold for drinking-purposes, at two cents a gallon. Oh that we could have such water as this in every home in our land ! I honestly believe it would do more to save doctors' bills than almost any other one thing in the world.

I had a great curiosity to explore these caverns, and to figure out, at least to my own satisfaction, what caused them. I do not know what scientific men have done in this direction; but my conviction is, that earthquake or volcanic action has at some time in the past made an upheaval, forming the rocky hills along the shores of Lake Erie. This upheaval in this locality probably dropped back a little; but in dropping back, the stones and rocks that were rent did not exactly come back in place, leaving these broken openings. The caverns are entirely different from those of the Mammoth Cave, for the latter were cut out by water; but the water seems to have little or no effect on the rocks in these caverns; in fact, the stones above the water-line are so dry that I squeezed through openings upon my hands and knees, all about among them, and scarcely soiled my clothing. In fact, this wonderful spring seems to be entirely sheltered, even from the rain water. As everybody goes in and out as they choose, all of the best specimens of rock crystal have been chipped out with hammer and chisel. Almost every one suggests that the waters come from Lake Erie. But, hold on, friend. They are up perhaps twenty or thirty feet *higher* than Lake Erie. At one place at the side of the hill there is a running spring; and friend Martin tells me that one day he was greatly astonished to find the water in a shallow well had suddenly risen two or three feet. Investigation showed that the waters in the cavern had risen correspondingly. After he had wondered what convulsion of nature had suddenly changed the dead level that had been so constant for so many years, he found that his neighbor, who owned the spring, had made a dam at the outlet, so as to make the water deep enough to wash his sheep. This caused a sudden rise all over the locality. Well, now, one would think that this six-inch pipe, operated by a powerful engine, with its constant pull, would lower the water in the caverns; but so far it has not done so, even to the extent of the fraction of an inch. Its depth is said to be unknown, "as soundings to 200 and 300 feet have in some places failed to reveal it." When you go to Sandusky, be sure you get a taste of the famous Crystal Rock spring water—that is, if you never tasted it.

In closing, permit me to say a word about grape-growing along the lakes. Friend Martin tells me that his finest grapes grow on his poorest soil, without the application of a particle of manure. In fact, the most beautiful crop of grapes I ever saw in my life—grapes of all varieties—are on just such soil. All he is doing or all he has done for years past is to kill the weeds, trim the vines, and gather the grapes. He says they are very much more free from disease, and the quality is much finer, where there is no sort of fertilizing done. Friend Boardman told me that it was exactly his experience, and he is somewhat of a grape-grower.

IRRIGATION FOR PEACH-TREES.

While at the Castalia caverns, I noticed such beautiful peaches on the grounds of friend Martin that I purchased a dozen baskets, and had them sent home. Afterward, however, I found some much finer near the shaft that goes down into the caverns. Friend Martin told me, however, that these were not yet ripe. He said they were irrigated with the spring water; and it not only had the effect of making them much larger, but of making them later. The trees were a wonderful sight in the way of luxuriance, and the peaches the largest and finest I ever saw anywhere. The difference in size between them and those I had already purchased was doubtless owing entirely to irrigation, as they were of the same variety. And here is one straight piece of evidence that it will pay to irrigate peaches during a dry season where water is handy. I engaged a dozen baskets of these at 50 cts. per peck basket. They are the largest and finest peaches I ever saw this side of California.

HOW BASKETS, ETC., ARE MADE.

When I called at friend Boardman's on my return home he was just ready to "go fishing," and urged me to go along; and when he declared he would go out on Lake Erie, and fish for rock bass all by himself, if nobody would go with him, it was more than I could stand. I can not stop to tell you of the pleasant time we had, but will mention that, on our way home, we visited the Berlin Heights fruit box manufactory. They are well known to many of our readers as manufacturers of bee-supplies also. Just at the time of my call, however, all hands were busy at work on baskets for peaches and grapes. Did you ever wonder how it is possible to make a nice, neat, light, handy half-bushel basket so it could be sold for a nickel, or a little less than four cents by the quantity? Well, this is the way they do it: They take green logs, about four feet long. These are put into a big turning-lathe, with the requisite machinery, to pare off a thin veneer of wood, much in the way your mother pares a long potato. The log keeps rolling in the lathe, while the sharp keen blade works closer and closer toward the center. The shaving that comes off is about like a roll of wall-paper. In fact, the whole operation is like pulling off the end of a strip of wall-paper so as to unroll a big roll. Then these big sheets of wood, like unto paper or thin pasteboard, are cut into strips or basket-splints by machinery. Expert women weave these splints together so as to make the bottom of the basket. Then a boy takes this bottom, with the splints sticking straight out all around, and pushes it into a form so that the splints stand straight up — or, rather, straight up off on a diagonal. Then he winds a piece of heavier stuff around the basket, so as make the hoop that goes around the edge. This is all done with such lightning-like rapidity that you can hardly see the motions of his hands. Before commencing he fills his mouth with tacks. It made me think of the boy I have read of, who, while fishing, carried the bait in his mouth, so as to have it handy and in good condition. I wondered if the sharp tacks did not prick his tongue. He looked very pleasant and good-natured about it, if it did. But the most wonderful part of it all was to see those tacks get out of his mouth and into the rim of the basket, just in time to catch the quick strokes of the light hammer he held in his hand. Why, before you could say "Jack Robinson" every nail was in its place, and clinched down at that. Then he tossed the basket over to a man with a great big sharp buzz-saw. The basket was crowded into a square box, and pushed against the saw until all the splints sticking out, and a little of the rim, were nicely trimmed. Then the buzz-saw man tossed the basket over his head, and it disappeared somewhere in the upper air. Afterward we found a person in the loft above who caught the basket as it came up through the hole in the floor, and handed it to some women who nailed on the handle. There is your basket—labor, tacks, and timber, thrown in, all for less than four cents. As these baskets are very bulky and unwieldy to ship, at the same time being of very small value for the space they occupy, it seems almost necessary that they be made right in the fruit-regions, so the fruit-grower can back his wagon up at the door and take his baskets straight to the peach-orchards to be filled.

The fishing and the baskets made me so late that I decided to take a ride home after night. Just as I had begun to feel the exhilaration of drawing in great breaths of fog-laden air as I passed through the low lands (you know I have mentioned this to you before), I came up out of the valley and saw a farmer and his wife going somewhere by the light of a lantern. It made me think of my father and mother, away back on the old farm. I decided that they must be going to meeting. Pretty soon a little church with a lighted lantern in front proved my surmises to be correct. Quite an audience had gathered, and they were singing one of my favorite hymns. Although I did not know the name of the town, nor what denomination these people belonged to, it was a real pleasure to join with them in worship. I had been away from home three days in the middle of the week, and found a prayer-meeting or preaching each evening. The good pastor noticed a stranger among his people, and it was my privilege to give my testimony with the rest. Now, dear friends, so long as it is true that Christian people are gathering together all over our land, in every little town, and on almost every day of the week, to worship God and to ask his guidance, our country is not so very far gone in wickedness and iniquity. "Ye are the salt of the earth." "Ye are the light of the world."

OURSELVES AND OUR NEIGHBORS BY A. I. ROOT.

And be ye kind one to another, forgiving each other, even as God also in Christ forgave you.—Eph. 4:32.

I have many times felt sad to think that it is not possible for me to look over all of our correspondence and business deal, and give directions for its management, as I used to in years gone by. We have plenty of willing helpers, providing they knew just exactly what I wanted done, or what I would have done under special or peculiar circumstances. A little transaction that came up a few days ago has induced me to take up the subject which our beautiful little text above covers somewhat. Perhaps I may remark that a certain class of letters, especially if complaining letters, usually come directly to me. The one below is of that class. We give only the initials instead of the full name, because we would not willingly hurt any brother's feelings, or give him pain:

Mr. Root:—Yours of the 10th inst. is received. As I stated before, I will send the three dollars just as soon as I can, which will be after I gather my crop —not because it is justly due you, but because class laws will give you the privilege of collecting it.

U. H. W.

P. S.—Read the fifth chapter of James.

In the first place we try to have it distinctly understood that our establishment never wants a copper from anybody unless it is justly due; and, as a rule, we would not want any thing unless the debtor *also* agreed that it was justly our due. I do not know just exactly what friend W. means by "class law;" but his postscript, where he directs me to the fifth chapter of James, would indicate that he stands with quite a large class of people who have recently got into a way of laying all the troubles that beset our nation at the present time to the fact —or at least they call it a fact—that the rich, or the men of capital, if you choose, monopolize not only the property, but make our laws. I have not time nor space here to enter into a discussion of this matter. If friend W. would pay me a visit I think he would be satisfied that my dress, appearance, and habits do not indicate that I belong to the class alluded to in the first verse of the fifth chapter of James. My clothing is never expensive, and very often it is so untidy-looking that business men would look all over our establishment before they would think of calling *me* A. I. Root. I do not know that my course is just right in this; but while I am around home I am so often called upon to go down into the basements to look after the sanitary drainage, water-pipes, or machinery, that it seems almost folly for me to put on expensive or new clothing for my daily work. I have never had a gold watch nor a gold chain in my life, but constantly use a Waterbury for a timepiece; neither do I ride in a fine carriage. I presume I may be excused from saying any thing further on this point. It is true, I do have the management of a considerable amount of capital; but this capital is all used in giving work to or otherwise benefiting my fellow-man—not that I may put on fine style, or that any of the members of my family may do so. We are all humble, moderate, hard-working people. My good wife does her own housework, and has done so for years.

Just a word or two more in this line, and then I am done with this part of my subject. There are in our neighborhood certain people who say that farming does not pay; and of late they are getting into a way of insisting that nothing pays unless a man is rich; and if they do not say it right out, they seem to imply that no man gets rich except by fraud and sharp dealing. The Bible tells us, "By their fruits ye shall know them." And along this line let us inquire what is the result on the man, his farming, or his business, when he falls into line with this sort of people. I need not answer that question. You see it in your own neighborhood. Some two or three years ago one of these men told me that it was only a question of time—we were all going into bankruptcy sooner or later, and that my turn would come with all the rest—perhaps a little later. This is an extreme case, I know. The man who said it I regard as a very good man; and I rather think he takes a more hopeful view of things *now* than he did then—at least, he has, so far as I know, abandoned that line of politics, and is now hard at work. Now, friends, do not feel hurt, any of you, on account of what I have said. I profess to be a Christian, and as such I have a *right* to be hopeful; and if I did not have faith in God and humanity I should not be a very good follower of Christ Jesus. I know there are wrongs and injustice; I know that men of capital are often overbearing and selfish; but I think I know *also* that there is a good prospect ahead for honest and hard-working men.

After I had looked at the letter a little I said to the clerk, "Hasn't this man been embittered toward us by some business transaction?" The book-keeper replied that he had not, so far as he knew. Finally I said, "Please bring me all the correspondence from him you can find." Pretty soon my heart was rejoiced to find the following old letter:

> *Mr. Root, dear Brother in Christ:*—Inclosed please find a postal note for $2.48, for which please send me First Steps for Little Feet, three copies, $1.10; Christian's Secret of a Happy Life, one, 25 cts.; back dues on GLEANINGS, $1.00. Total, $2.48.
>
> Dec., 1890. U. H. W.

The part that made me feel happy was the opening sentence. The letter, you see, dates away back to 1890; and the books that he orders are none but those that a Christian man would be likely to buy. After a little careful examination I decided I had found at least one clew to this great change in his attitude toward our establishment, and it pained me to the heart when I saw it. The retail price of the little book, First Steps, is 50 cts. Our good brother wanted *three* of these books, and he carried out the price at $1.10. I remember that, when we got these books of Charles Foster, he objected to letting us sell them at the very close margins we ordinarily sell our goods. He said the established price was 50 cts., and that we must not sell a *single* book at a less figure. He consented, however, to letting us make two or more books at such a price as we thought fit; so we advertised one book at 50 cts., or two at 75 cts. Now, friend W. reasoned that, if we sold two books at 75 cts., we might do still better, or at least a *little* better, on three. Three at 37½ cts. would be $1.12½. He took the liberty of putting it $1.10. There is nothing in our price list to indicate to the clerk or customer how low we could sell three books. I have, however, again and again assured the clerks in our establishment, and often with much emphasis, that, where a man has secured a low rate on any article by buying in ten or dozen lots, all additions to such an order, making the quantity purchased still larger, should certainly be at the same rate—not any higher, surely, but, if any thing, a little lower. In order to know how much lower, they usually consult our business manager, Mr. Calvert, who makes all our purchases. Now going back to the letter: The clerk who filled the order drew his pen across the $1.10, and wrote above it, in ink of a different color, $1.25. He reasoned thus: Two books at the advertised price, 75 cts., and one book at the advertised price, 50 cts., makes $1.25. I can not discover, however, that any explanation was ever made. In any such matter, any one feels a great deal better about it to have the whole thing explained. I know I should. Of course, friend W. was asked for the difference. He, however, takes it in very good grace, as would seem from the letter below:

> *Mr. Root:*—Inclosed please find postal note for balance due on books; yet I can't see why you charge $1.25 for three First Steps for Little Feet, when you advertise two for 75 cts. Please accept thanks for sending the books without the full amount. U. H. W.

It may have been a rather hard matter for him to reconcile such a transaction from his valued and trusted friend A. I. Root; but he concludes, perhaps, that it is a small matter, and he will let it go. If I am correct, however, the matter is not easily dropped. Afterward, in reading the Home Papers, the whole effect would be spoiled because he had lost confidence in the man whom he had formerly looked up to as teacher. Surely, it would seem that some explanation should have been given on receipt of the above; but all I can find is written on the letter below—"I think that is correct," with the signature of the clerk who attended to that department.

As I am supposed to be the offender in this case, I think I may be excused if I speak pretty severely in regard to such matters. There are a good many business places where you can get low figures providing you make a bargain first as to what the price will be; but if you make your order *first*, without saying any thing about the price, there will be a vast *sight* of difference. They seem to put on all they think a customer will bear. It is true with some people when they get the money in their hands, they seem inclined to hold on to every copper they can. If they can not give a consistent reason for keeping all or pretty nearly all of it, they give some reason that is *not* consistent. I do not know of any thing else in this world that so vexes people—especially well-meaning, hard-working people. It makes them bitter toward the world, and bitter toward humanity. They lose faith in every thing; and they get so they imagine fraud and evil at every step. O dear friends, if I have any influence over you, please believe me when I tell you this thing is one of the grievous troubles with Christianity. A professing Christian sends out advertisements, and tries hard to get customers; but as soon as he gets a customer, and begins to get things into his own hands, he lets that leading sin of all sins, *selfishness*, creep into his heart, and vexes and angers both friend and foe by his littleness and stinginess and selfishness in deal. May God help us to think as much of our neighbor's pocketbook as we do of our own.

An incident of but a few minutes ago illustrates the point I wish to emphasize. A relative of mine has been here on a visit. She was just going home, and wanted to take a barrel of fruit. I asked the question at the office, where our book-keepers are at work, whether the barrel of fruit could be checked as baggage. The answer came, that, if I put it into a box with handles, or made it look like a trunk, then it could be classed as baggage. Said I: "But, look here, good friends, it is *fruit*, and not baggage, we wish to send. If the fruit is to be covered up, and made to look like something else, so there will be even a little deception in the matter, I should much prefer to send it in the usual way, and pay the freight."

One of the girls in the office said that she had often sent fruit in that way; and Mr. Calvert suggested that it was not deception—it was simply fixing the fruit so it could be as easily handled as trunks and ordinary freight. Now, I have not yet found out who is right or wrong in the matter. The real point comes next. Just then I remembered something else that was on my mind, and I remarked: "Oh ! say, John, those American Pearl onion-sets from Johnson & Stokes got here yesterday, and Mr. W. says the freight all the way from Philadelphia was only 35 cts. Isn't there some mistake about such a small price?" One of the girls here suggested, with a twinkle in her eye, that doubtless there was some "deception" about it; and one of the others said that, if the price was too low, why not keep quiet, and not say any thing. The clerks all knew my disposition in such matters, and they were rather running on me, and having a little fun at my expense. Now, then, nobody ever feels hard when the charges for carrying stuff are *surprisingly low*. Nobody ever suggests that the railroad company is guilty of *deception* when they make a mistake, and put the charge too low. But why not? If it were not for this sin of selfishness, we should be just as anxious to have the matter righted when the railroads have charged too *little*, as when they have charged too *much*. What an idea ! charging the company with fraud because they brought your goods too cheap ! May God help *me* to be just as anxious to have the mistakes corrected when it is too *little*, as when it is too much—even with a *railroad company*.

You will notice that the last letter is dated Jan., 1891. In Dec., 1893, comes the following:

> *Mr. Root:*—Please stop my GLEANINGS, for I have not got a dollar to pay on what I owe you now, but will pay as soon as I can. U. H. W.

Perhaps friend W. has had reverses in bee culture, like the rest of us. May be he has lost his enthusiasm, and does not take very much care of his bees. But aside from that, there is no question that he has lost his faith in A. I. Root; and it may be, dear friends, that, in losing faith in me, he has lost faith in God. Such things do happen. I tell you, we who profess to be followers of Christ can not be too careful. Of course, the Christian should not be stumbled by what any *man* may do. He should look straight past humanity to Christ Jesus. But it takes a *veteran* to do this. You know how it is yourself. Once, under great provocation, I said, "If it really transpires that this man has been stealing money intrusted to his care, I am afraid I can never have faith again in humanity." A loss of faith in humanity comes pretty near a loss of faith in God; and we should look out, and be very careful how we even speak or think in this way. It turned out, however, that the man in question was strictly honest. He was unwise and very careless; but he was honest before God, and is honest and straight to-day. One who has just started out in the Christian life is more liable to be stumbled. He has not been through the battles, and seen God and righteousness triumph over evil. A new convert is especially likely to be discouraged, and turn back when he sees a man act hypocritically.

Several times the readers of GLEANINGS have made objection to such expressions as "Brother in Christ;" and I have sometimes felt as if they were unwise and dangerous. When somebody writes to me a letter, and tells me how my writings have helped him, and how he looks to me monthly for faith and strength to hold out in the Christian warfare, I often feel like writing back to him, "Dear brother, do not place too much faith and confidence in me. I am poor, weak, and sinful. If you really have faith in me—if you really have been helped by my writings, please save up a big lot of charity to tide you over when I shall do something that looks on the face of it selfish and grasping. Save up enough of this kind of charity to hold fast your faith in me until something transpires, or until you can write me for an explanation." It just now occurs to me that our good brother W. *did* write for an explanation. When he inclosed the balance on those three books, First Steps,* he said he could not see why we should charge him more just because he ordered three copies (¼dozen) instead of two copies: and he honestly supposed that A. I. Root, his old and tried friend, answered coldly, "I think that is correct." Perhaps some of you may suggest that this clerk was not fit for the place. But I beg of you, dear friends, to remember that clerks are but human. Some of them do very queer things without thinking they have done any thing wrong. Right here permit me to say that our clerks, in such matters, are always loyal to the business. Somehow they will get it into their heads that, when there is a question, our establishment should have the *best* side of the bargain, or the best construction on any matter of prices where it is not clear. I do not want this. Our business was not built up in that way. Where there is a question as to what is right and wrong, I would always be courteous enough to a customer to give him the benefit of any question there might be in opinion—yes, even though we might lose some money by so doing. Make your advertisements so they do not promise very much, or make your prices so there is a respectable margin; then, instead of failing to live up to your agreements, try to do a little *better*, if any thing. Remember, it is not simply a matter of building up a reputation, but it is honoring Christ Jesus. It is glorifying the great God above, who created you in his own image. It is Satan who prompts us to be little and mean, and close and stingy. It is he who prompts us to cheat, and wiggle out of a selfish transaction, without owning it up and making reparation. I do hope that every clerk in my employ—and I wonder if they will be offended if I say every "brother and sister" in our employ—will read this Home Paper, and will comprehend that our business is not conducted to make money altogether. It is to honor Christ Jesus—to glorify God, and to bring out the better part in every human being. May the great Father above help us to make mankind *better* instead of *worse*. May he help us to make every transaction so fair and honest that we shall never be afraid of investigation; and may he help us to avoid all temptations in the way of being short or important or overbearing with our customers. In short, may he help us to be "kind to one another, tender-hearted, forgiving each other, even as God also in Christ forgave you."

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*Cheating about any thing is bad business; but the idea of exhibiting a selfish and grasping spirit to a customer who ordered such a book as "First Steps," seems really awful in its inconsistency. I wrote to friend W. as soon as I discovered it, and made the bill an even dollar for the three.

HIGH PRESSURE GARDENING

We have just thrashed our rye, and all hands were surprised to find 158 bushels when we expected only a hundred or a little more. I can not tell exactly the amount of ground, but I think it was not altogether much if any more than three acres. Some of it came from self-seeding in the clover, and it was put in all along after other crops were removed. Of course, rye is not much of a crop for high-pressure gardening, except that it occupies the ground during the winter, and helps us to get in clover. Just now, however, there is a good prospect that crimson clover may take the place of rye. All that we sowed during the month of September is doing finely. There is one little trouble that I have seen mentioned in the papers elsewhere. When it is putting out its third leaf, some sort of insect eats out a portion or all of these third and fourth leaves. The plant manages to grow in spite of this; but it must be quite a drawback, this sort of mutilation of the tender leaves. I have not yet been able to discover what does it.

I wish to mention an incident that occurred while we were having the thrashers thrash the rye. We wanted them to plant the machine on the bridge of the bank barn, in order to put all of the straw under cover in the mow and over the tool-house. This arrangement, blocking up one end of the separator, etc., took nearly an extra hour with their four men, teams, and expensive new machinery. Besides this, there was a load or two of stubble, etc., that I thought had grain enough to pay for thrashing. The rye was so tall it was difficult to reap it without setting the machine very high up, and then cutting the stubble afterward with a mower, and raking it up with a horse-rake. The agreement was, to thrash it for three cents a bushel, the same as they charge for wheat. Other thrashers wanted four cents. The lot of stubble, etc., yielded them only two or three bushels of grain. It was a blunder of mine having it put through. When we came to settle, their bill was only 3 cents per bushel for 158 bushels, $4.74. When I told them to put in what was right for the extra trouble of setting up, and my blunder on the stubble, they laughed at me. One of them said good-naturedly, "Why, Mr. Root, that is all right. It is true, there was some extra bother and expense on your job; but the next job will probably be enough better to make it all up. Where we thrash by the bushel we have to take these things as they come. There is no extra charge, but we are very much obliged to you for your liberal offer."

This transaction occurred just after having dictated my Home Paper in this issue; and I do not know but my own sermon was ringing in my own ears, so I insisted on paying them a little something for the unusual bother I had made them, although they would not consent to take very much. But perhaps I hear some one say, "That is all right, friend Root, when you have plenty of money, to be liberal; but were you pinched to make both ends meet, and were absolutely obliged to save every copper, it would not be so easy a thing to do." My reply is, that the one who does business in this way will have the wherewith to do it. "To him that hath, shall be given;" "Give, and it shall be given unto you, good measure, pressed down, shaken together, and running over." And still again, "Do good again, and lend, hoping for nothing again." May be you think the above is away from the subject of high-pressure gardening; but I am sure it is not. If you once get a reputation for looking out keenly in regard to the interests of those with whom you deal, it will be worth more than money in the bank. When people discover that you wish to pay for every blunder you make—that you are careful, conscientious, and tender, in regard to encroaching on the rights of others, in a little time those who know you will be stirred by a spirit of fairness and justice to do likewise, and other people will be looking out for *your* interests as well as their own. Where it is clearly apparent that you have, by a blunder or by your peculiar needs encroached on the time or property of another, show yourself a man—a man created in God's own image—by stepping forward with cheerfulness and alacrity to make good the loss to your neighbor.

Cabbage seems to be plentiful everywhere, the recent rains having pushed it forward so as to develop the heads and cause many of them to burst. Worse still, the early crop was held back by the drouth, and it has pushed in all at once along with the later crop. Everywhere I go on my wheelrides, cabbage is offered at a very low figure. Muskmelons are also very plentiful and cheap. In some of the towns I passed through, I saw them as low as a cent apiece—great fine luscious nutmegs; and quite good-sized watermelons were offered, two for a nickel or five for a dime. Perhaps some of you may say that nobody can live at such prices. Well, in one sense it is pretty hard; but I think it is better to sell at the above prices than to leave them to rot on the ground. I have often seen farmers sell wagonloads of pumpkins at a penny apiece. Now, a wagonload of melons would bring a great deal more than a load of pumpkins; and on suitable soil it might not cost much more to raise them.

We just now have some very fine Premium Gem peas; but the dry weather held them back so that we have not nearly as many as I wish we had.

There is quite a little complaint that the Freeman potato is not a good yielder. I confess it has not been very good during the two past dry seasons. We have, however, secured something like 200 bushels to the acre, many of them of very fair size, and they are surely the best table potatoes in the market. The later potatoes, however, that kept along until the fall rains, are doing, or are going to do, very much better. Our late Freemans are just now growing grandly.

We have had no frost to do any harm up to the present writing, Oct. 8.

While cabbage is so cheap, one would hardly think that people would care for spinach; yet nice spinach sells readily at 5 cents per pound, where the best cabbage brings only one cent; and bursted heads are offered at half a cent a pound. Hubbard squashes are also bringing a good price, even though sweet potatoes are about as cheap as Irish potatoes.

If you have not already got Grand Rapids lettuce under way, now is the time to do it. Plants will not need any heat for a month or more, and it is a very easy matter indeed to have a good supply of nice lettuce on hand for Thanksgiving.

CHAS. ISRAEL & BROS., 110 Hudson St., N. Y.

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HONEY —AND— BEESWAX.

LIBERAL ADVANCES MADE ON CONSIGNMENTS.

Books for Bee-Keepers and others.

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults, so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines,‡; foreign, §. The bee-books are all good.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well by the amount required for postage on each.

8	Bible, *good print*, neatly bound	20
10	Bunyan's Pilgrim's Progress**	30
20	Illustrated Pilgrim's Progress**	75

This is a large book of 425 pages and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25c more.

6 | First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50 c. Two copies will be sold for 75 cents. Postage six cents each.

5	Harmony of the Gospels	35
3	John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*	10
1	Gospel Hymns, consolidated Nos. 1, 2, 3, and 4, words only, cloth, 10 c; paper	05
2	Same, board covers	20
5	Same, words and music, small type, board covers	45
10	Same, words and music, board covers	75
3	New Testament in pretty flexible covers	05
5	New Testament, new version, paper covers.	10
5	Robinson Crusoe, paper cover	10
4	Stepping Heavenward**	18
15	Story of the Bible**	1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

5	The Christian's Secret of a Happy Life**	25
8	Same in cloth binding	50
	"The Life of Trust," by Geo. Muller**	1 25
1	Ten Nights in a Bar-Room, T. S. Arthur*	05
5	Tobacco Manual**	45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy that reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

Postage		[Price without postage.
15	A B C of Bee Culture. Cloth	1 10
5	A Year Among the Bees, by C. C. Miller	45
	Advanced Bee Culture, by W. Z. Hutchinson	50
3	Amateur Bee-keeper, by J. W. Rouse	22
14	Bees and Bee-keeping, by Frank Cheshire, England, Vol. I.§	2 36
21	Same, Vol. II.§ r	2 79
	or, $5.25 for the two, postpaid.	
	Bees and Honey, by T. G. Newman	1 00
10	Cook's New Manual. Cloth	90
5	Doolittle on Queen-Rearing	95
2	Dzierzon Theory	10
3	Foul Brood; Its Natural History and Rational Treatment	22
1	Honey as Food and Medicine	05
15	Langstroth Revised by Ch. Dadant & Son	1 25
10	Quinby's New Bee-Keeping.	1 40
	Thirty Years Among the Bees, by H. Alley	50
4	Success in Bee Culture, by James Heddon	46
	Handling Bees, by Langstroth. Revised by Dadant	08
	Bee-keeping for Profit, by Dr. G. L. Tinker	25
5	The Honey Bee, by Thos. William Cowan	95
	British Bee-Keeper's Guide Book, by Thos. William Cowan, England§	40
3	Merrybanks and His Neighbor, by A. I. Root	15
4	Winter Problem in Bee-keeping, by Pierce	46

MISCELLANEOUS HAND-BOOKS.

3	A B C of Potato Culture, ** New Edition	35

This is T. B. Terry's first and most masterly work. The book has had an enormous sale, and has been reprinted in foreign languages. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. It has 122 pages and 37 illustrations.

5	A B C of Carp Culture, by Geo. Finley	35
5	A B C of Strawberry Culture**	35

The above book by T. B. Terry, with some additional remarks by A. I. Root, is, at the present time, creating an enthusiasm and interest in strawberry culture never known before. It is a book of 144 pages and 32 engravings, and it is fully up to the times.

5	An Egg-Farm, Stoddard**	45
	Amateur Photographer's Hand-book**	70
	Barn Plans and Out-Buildings*	1 50
	Canary Birds. Paper,	50
2	Celery for Profit, by T. Greiner**	25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once, without any assistance except from the book.

	Draining for Profit and Health, Warring	1 50
10	Fuller's Grape Culturist **	1 40
	Farming For Boys*	75

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

7	Farm, Gardening, and Seed-Growing**	90

This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages

12	Gardening for Pleasure, Henderson*	1 85

While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 404 pages and 203 illustrations.

12	Gardening for Profit, new edition**	1 85

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts.

	Gardening for Young and Old, Harris**	1 25

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

10	Garden and Farm Topics, Henderson**	75
	Gray's School and Field Book of Botany	1 80
5	Gregory on Cabbages; paper*	25
5	Gregory on Squashes; paper*	25
5	Gregory on Onions; paper*	25

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

10	Greenhouse Construction**	1 40

This book, by Prof. Taft, is just out, and is as full and complete in regard to the BUILDING of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

15	How to Make the Garden Pay.**	1 35

By T. Greiner. This is a new book, just out, and it gives the most explicit and full directions for gardening under glass of any book in the world Those who are interested in hot-beds, cold-frames, cold-greenhouses, hot-houses or glass structures of any kind for the growth of plants, can not afford to be without the book.

	Handbook for Lumbermen	10
10	Household Conveniences	1 40
2	How to Propagate and Grow Fruit, Green*	15
2	Injurious Insects, Cook	25
10	Irrigation for the Farm, Garden, and Orchard, Stewart*	1 40

This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

5	Manures; How to Make and How to Use them; in paper covers	45
6	The same in cloth covers	65

Covering the whole matter, and discussing every thing to be found on the farm, refuse from factories, mineral fertilizers from mines, etc. It is a complete summing-up of the whole matter. It is written by F. W. Sempers.

7	Market-gardening and Farm Notes, by Burnett Landreth	90

The Landreths are the pioneer seedsmen of America; and the book is worth fully as much as we might expect it to be. I think I received hints from it worth the price, before it had been in my hands fifteen minutes. It is exceedingly practical, and tells what has been done and what is BEING done, more than it discourses on theory.

5	Tile Drainage, by W. I. Chamberlain	35

Fully illustrated, containing every thing of importance clear up to the present date.

A. I. ROOT, MEDINA, O.

PATENTS

Careful attention given to the prosecution of business before the U. S. Patent Office. All business treated as *strictly confidential.* No charge made for services in prosecuting application, until the patent is allowed. Send for "INVENTOR'S GUIDE."

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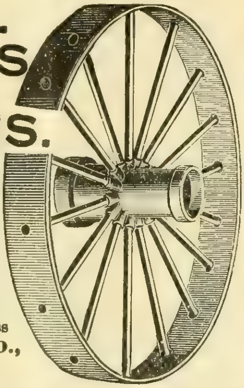

Any size you want, 20 to 56 in high. Tires 1 to 8 in wide—hubs to fit any axle. **Saves Cost** many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires Catl'g free. Address
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It will be the endeavor of the new firm to meet the wishes of their patrons in the future as the late firm has in the past.

Thanking you for the many past favors received by the late firm, we hope to be favored with a liberal share of your patronage in the future.

All orders and inquiries by mail or otherwise will receive prompt attention. Very respectfully,
Boston, April 2, 1894. ROBINSON & GRAY.

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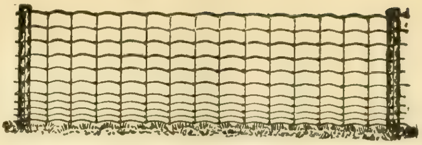

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At the Michigan State Fair a man wanted a bill of fence, but objected to our price, as he was told he could do better. Later, he came back and bought freely, then stated the reason thusly: "I went the rounds of all the fence exhibits, and each and every one assured me that his was 'just as good as the **PAGE**' and cost only ¾ or ⅔ or ½ as much. The Page seemed to be the **STANDARD,** and in buying it I take no chances."

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Square Glass Honey-Jars,
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Honey Sections, Etc., Etc.
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CHAS. F. MUTH & SON, Cincinnati, O.

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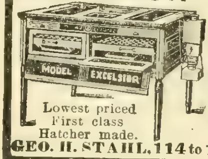

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Thousands in Successful Operation. *SIMPLE, PERFECT, and SELF-REGULATING.* **Guaranteed** to hatch a **larger percentage** of fertile eggs, at **less cost,** than any other Incubator. Send 6c. for Illus. Catalog. Circulars Free.
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Every Farmer

Ought to read the Rural New-Yorker.

(Published weekly.)

It is the business farmer's paper, and a most reliable authority on agricultural and horticultural subjects. Frauds and humbugs fear it. ONLY $1 A YEAR. Send for sample copy to **THE RURAL NEW-YORKER. New York.**
We have made arrangements so that we can send it and GLEANINGS for $1.75 a year.

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DOVETAILED HIVES, SIMPLICITY HIVES,

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HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—A steady, quiet trade is noticeable all along the honey market. White comb continues to bring 15 cts. per lb., while in other respects desirable off-grades of dark are slow sale at 10@13. Extracted is selling at 5, 6, and 7. All white honey brings 6@6½, and in the 60-lb. can, 7; some fine white clover brought 7½. The demand is moderate. Beeswax is scarce, and some lots have sold at 27@28—a little fancy yellow at 30.

R. A. BURNETT & CO.,
Oct. 18. 163 So. Water St., Chicago, Ill.

CHICAGO.—*Honey.*—We quote comb honey that is fancy white and in one-pound sections, at 15c; No. 2, 13c; buckwheat honey at 10c. With cooler weather, demand improving, and our stock on hand at the present time is extremely light. Extracted honey is selling at 5½@7 cents per pound, depending upon quality and style of package. Beeswax, 28c. We will make liberal advances on consignments, and render prompt sales. S. T. FISH & CO.,
Sept. 21. 189 South Water St., Chicago, Ill.

DENVER.—*Honey.*—There is not much change in our market. Best consignments of No. 1 white comb honey in 1-lb. sections, put up in 24-lb. cases suitable for putting in cartons, 12½c; lower grades, 10½. No. 1 white extracted honey, in 60-lb. cans, 7c. We can still handle a quantity of No. 1 comb to advantage. R. K. & J. C. FRISBEE,
Oct. 22. Denver, Col.

NEW YORK.—*Honey.*—Comb honey continues to arrive quite freely, our receipts up to date numbering 10,119 crates. The demand is fair, at prices ruling as follows: Fancy white, 1 lbs., 14c.: dark white, 12c; buckwheat, 10c; 2 lbs., 1@2c per lb. less according to quality. There is no activity in the market on extracted, with plenty of supply. We quote basswood and white clover, 6@6½c. Southern, 50@55c per gallon Beeswax scarce, and in good demand at 29c per lb.

HILDRETH BROS. & SEGELKEN,
Oct. 25. 28 & 30 Broadway, New York.

CLEVELAND.—*Honey.*—No. 1 white honey is moving more rapidly than last week at from 16 to 17 cts. There is very little call for the No. 2 grades at 14 cts. Extracted white sells at from 6 to 8 cts. Beeswax, 25@27. WILLIAMS BROS.,
Oct. 18. 80 & 82 Broadway, Cleveland, O.

BOSTON.—*Honey.*—We take pleasure in quoting you our market, but regret to state that the demand is only fair while the supply is good. Comb honey. 14@15; extracted, 5@6. Beeswax, none in the market, with a demand at 27@28.

E. E. BLAKE & CO.,
Oct. 20. Boston, Mass.

KANSAS CITY.—*Honey.*—The receipts of honey large, market well supplied. Fancy white, 1-lb. combs, 15 cts.: amber, 12@13. Receipts of extracted light; white, 7 cts.; amber, 5½@6 cts.; Southern honey, 4½@5. Beeswax, 22 cts.

HAMBLIN & BEARSS,
Oct. 19. Kansas City, Mo.

KANSAS CITY.—*Honey.*—The demand for comb is fair, receipts fair. We quote No. 1 white, 1-lb. comb, 15; No. 2 white, 1-lb. comb, 13; No. 1 amber, 13@14; No. 2 amber, 1-lb. comb, 10@12; extracted, 5@7. Beeswax, 22@25. C. C. CLEMONS & CO.,
Oct. 19. Kansas City, Mo.

BUFFALO.—*Honey.*—Honey is beginning to move well on our market—Fancy, 14@15; choice, 12@13. Stock is comparatively light. We would advise shipments. Buckwheat, 9@11; strained honey, mostly 6@7. We look for satisfactory winter trade, and should be pleased to hear from those who have not yet disposed of their honey. It would be to their advantage to write us.

BATTERSON & CO.,
Oct. 8. Buffalo, N. Y.

DETROIT.—*Honey.*—Best white comb honey. 14@15. Other grades, 12@13; extracted 6½@7. Beeswax, 24@25. M. H. HUNT,
Oct. 18. Bell Branch, Mich.

ST. LOUIS.—*Honey.*—Inquiries more abundant, receipts fairly good. Quotations unchanged. Prime beeswax, 26@26½.

D. G. TUTT GROCER CO.,
Oct. 8. St. Louis, Mo.

ALBANY.—*Honey.*—Comb honey is selling very briskly, while our receipts are about the same as last season. Up to this date our sales are far in advance, and our stock is comparatively light at present for this season of the year. No change in prices. We quote white clover, fancy, 14@15; No. 1, 13; No. 2, 12; mixed and buckwheat, 10@11. Extracted, dull at 5½@7.

CHAS. MCCULLOCH & CO.,
Oct. 20. Albany, N. Y.

CINCINNATI.—*Honey.*—There is a good demand for choice white comb honey at 14@15. Demand is fair for extracted honey at 4@7 on arrival, according to quality. Beeswax is in good demand at 22@27 on arrival, for good to choice yellow.

CHAS. F. MUTH & SON,
Oct. 19. Cincinnati, O.

PHILADELPHIA.—*Honey.*—No. 1 white, 1-lb. comb, 10@12; No. 2 white, 1-lb. comb, 8@9 Wax, Western and Southern choice yellow, 26@27; Western and Southern, common or dark, 22@24. Honey market easy; wax market firm.

SHOEMAKER & MCELROY,
Oct. 18. 30 So. Water St., Philadelphia, Pa.

Alfalfa honey, very white, "dead ripe," thick and rich; $8.25 for two 60-lb. cans. Address

OLIVER FOSTER, Las Animas, Colo.
(Late of Mt. Vernon, Iowa.) eoitf

FOR SALE.—Eight tons fine extracted honey, put up in square 60-lb. cans, two in case, at 5½ and 6 cts. Five or more cases, ½c less. F. O. B. here.

J. B. CASE, Port Orange, Fla.

FOR SALE.—10,000 lbs. extra nice honey gathered from smartweed and other autumn flowers, about one-half comb and one-half extracted.

eitf JNO. A. THORNTON, Lima, Ill.

FOR SALE.—1800 lbs. honey in 60-lb. square cans, price 7 and cts., f. o. b. cars here. Sample by mail.

R. H. BAILEY, Ausable Forks, N. Y. Box 81.

Only a part of that car of honey left, but we still have plenty to fill orders at $7.80 per box.

AIKIN BROS., Loveland. Col.

Having secured a fine quantity of buckwheat extracted honey I now offer it in lots to suit purchaser, 210-lb. kegs at 6½c f. o. b.; also 2000 lbs. of basswood and clover. W. LAMAR COGGSHALL,
eitf West Groton, Tompkins Co., N. Y.

WANTED.—To buy quantity lots of white comb and dark extracted honey.

B. WALKER, Evart, Mich.

FOR SALE.—Choice white-clover comb honey, 14c; other grades less. A. P. LAWRENCE,
16-23ei Hickory Corners, Barry Co., Mich.

Comb and extracted honey wanted, in large o small lots. Consignments solicited. Reference, A I. Root, or Union National Bank, Denver.

eitf R. K. & J. C. FRISBEE, Denver, Col.

FOR SALE.—7000 lbs. of fine, ripe, extracted basswood honey, highest offer takes it. Also Italia Bees and Fox-hound pups.

eift ELIAS FOX, Hillsboro, Wis.

FOR SALE.—Two tons of white-clover honey (just bought). Will also buy for a small commission (sample crates forwarded). If you want comb honey nicely crated write me.

SMITH'S APIARY & STOCK FARM, Padelfords, N. Y

Buckwheat extracted honey at 5½c, f. o. b. Quality A No. 1.

F. A. ALEXANDER, Esperance, N. Y.

Burpee's ***Seed Annual*** for 1894 is well wort having. Tell to all who plant seeds
W. Atlee Burpee & Co., Philadelphia, Pa.

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SPECIAL NOTICES FROM BUSINESS MANAGER

IMPORTED ITALIAN QUEENS.

Just as the last form was going to press a month ago we received twenty-six fine queens by express from Italy. We had room for only a three-line notice calling attention to them. We have just now received seven more alive by mail. It is not too late in the season yet to introduce queens safely. To reduce our surplus we will continue October prices on queens for two weeks, or until Nov. 15th, giving any an opportunity to get a fine breeding-queen at a low price, ready for early breeding in the spring. This will apply to tested as well as imported Italian queens.

EARLY-ORDER DISCOUNT.

Those who are in the habit of taking advantage of early-order discounts, and securing the supplies needed the following spring, early in the fall and winter, should remember that this is the last month in which the largest discount (5 per cent) is allowed. Dec. 1 the per cent drops to 4. Many more would take advantage of these discounts if they appreciated all the advantages gained in so doing. In addition to the saving in price (sufficient, in many cases, to pay the freight), you have ample time during the long winter evenings to get hives and crates put up ready for use when wanted.

CARLOAD OF ALFALFA HONEY.

Just as we go to press we are daily looking for the arrival of a carload of comb and extracted alfalfa honey from Reno, Nev. There is about six tons of each kind; and, judging from former shipments from the same place, there is no finer honey produced anywhere. At the international convention at St. Joseph, Mo., it was agreed, by those who had tested alfalfa honey, that there was no honey superior to it in body, flavor, and color, and every other qualification that goes to make up a superior honey.

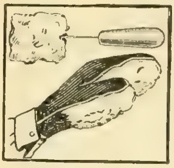
We already have orders booked for several thousand pounds, which will be shipped out as quick as car arrives. Our prices are, for extracted, in 60-lb. cans, 9c per lb. for single can; 8½c per lb. for a case of 2 cans, or 8c per lb. for 2 cases or more.

Comb honey, less than 100 lbs., 16c; 100 lbs. or more, crated to carry safely by freight, 15c.

If you haven't sufficient choice honey to supply your home market, order some of this, and your customers will be greatly pleased with it.

Later.—The car has just arrived.

POLISHING MITTEN.



There are very few housekeepers who do not have a stove to black, and many take pride in making it shine. One of the best implements for this purpose is the polishing-mitten shown herewith. This is a woman's invention, and a good one too, as you might know. It consists of a mitten of oilcloth, faced with sheep or lamb's skin tanned with the wool on. The mitten is accompanied by a dauber, also of wool on the hide. Those who have tried the mitten are loud in its praise. They are usually sold for 35 cts. postpaid. We can furnish them for 25 cts. postpaid, or, with other goods, not postpaid, 20 cts. each, or $1.80 per doz.; 3 doz., $4.50. We will send one free, postpaid, for one new subscription to GLEANINGS at $1.00.

Kind Words From Our Customers.

I have received every copy of GLEANINGS since I have been a subscriber. I don't think I could keep house without it. Each number comes promptly on time. I can not estimate the value it is to me. I prize it above all of my other journals, for it is always full of good things, and is prompt.

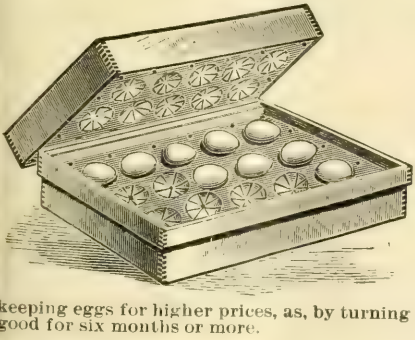
Dove Park, Ark., Aug. 6. J. W. MORRIS.

MORE THAN PLEASED WITH THE GOODS.

My supplies arrived in ten days from shipment, in good condition. I am more than pleased with the Crane smoker. I would not take ten dollars for it if I could not get another like it. Your one-piece sections I like well. They look the best and neatest of any we have ever had in this section. I have many of them filled with basswood honey; some were finished in eight days after putting them on. The basswood flow was good, lasting ten days. I shall get about 700 lbs. of comb and 300 of extracted, from 17 colonies. FRANK CHAMPEON.

Exeter, Me., Aug. 13.

Costellow's Egg-Box.



This is an invention of great value to poultrymen in general, and to those who ship eggs for hatching in particular. The box is complete in itself, nothing in the way of packing being required. It is only necessary to place the eggs in the box, and fasten the cover down; they are securely held in place by light springs, which allow no play in any direction, but which hold them suspended in the center of the box, where they are secure from all jar, thumping, or breakage

The springs are so constructed that they will hold with equal security and ease any size of hen's egg. The single box will successfully carry any number of eggs from one to fifteen, and the double box any number from one to thirty. The cover is secured by metal fastenings on each end, not shown in the engraving. It is well adapted to keeping eggs for higher prices, as, by turning the box over every few days, eggs in it will keep sound and good for six months or more.

PRICES.

	Sample.	Per doz.	5 doz.
15-egg box...............	$ 25	$1 80	$8 25
30-egg box...............	35	3 00	14 00

It is lighter than any other package that you can use with equal safety, as well as being cheaper. The 15 box weighs only 1¼ lbs., and the 30 box 2¼ lbs.

A. I. ROOT, MEDINA, OHIO.

CONVENTION PHOTOGRAPHS.

The members of the St. Joseph convention gathered upon the court-house steps and were photographed in a body. The size of the picture is 8x10 inches, and is excellent for a group of this character. There is not a face that would not be instantly recognized. Each person wears a number, and most of these numbers show, and a printed list accompanying the picture gives both the names and the numbers. If you would like a peep at the leading bee-keepers of the country, particularly those of the West, also to see seven editors standing in a line, send 75 cts., and the picture will be sent securely packed, postage paid, and if you are not *entirely satisfied* with it you may send it back and the money will be refunded. For $1.50 this picture will be furnished and the REVIEW sent from now to the end of 1895.

W. Z. HUTCHINSON, Flint, Mich.

PURE SUGAR-CANE SYRUP.

For table use and for bees it has no equal. I put this syrup up in barrels holding 26 and 52 gallons each, and in kegs holding 10 gals. See F. D. Woolver's letter in Jan. 1 GLEANINGS with editor's foot-note, for further information. 21-22

J. H. ELLIS, Kentwood, Louisiana.

☞In responding to this advertisement mention GLEANINGS.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

☞In responding to this advertisement mention GLEANINGS

THE VERY BEST GRADES AND WARRANTED TO BE PURE

HONEY

ADDRESS A. I. ROOT, MEDINA, OHIO.

FOR SALE.

75 HIVES OF BEES.

INQUIRE OF

AUG. LEYVRAZ, Francis, Fla.

Why Not?

Bottles.
Jelly-Glasses.

Supply your nearest grocer with honey in bottles or glass; it will pay you to do so. Square (flint glass) bottle holding exactly one pound of honey, six-dozen case, including corks and labels, with blank space on label for writing your name, $2.75.

Tin-top jelly-glass, holding 11 oz. of honey, six-doz. box, $2.00, or 20-doz. barrel for $5.50. This includes labels with blank space for writing your name.

Bright yellow beeswax taken in exchange at 27c per pound. 21-22

Tweed & Pritchard, 1135 Liberty St., Pittsburg, Pa.

Warranted Queens, 75c.

Five-band strain, bred for ***business,*** six for $4.00; dozen for $7.50. See former ***ads.,*** and send for circular. Safe arrival and satisfaction ***guaranteed.*** **J. B. CASE, Port Orange, Fla.**

AUSTRALIA.

Bees, Queens, and Bee-keepers' Supplies, 32-page illustrated catalog free on application.

W. S. PENDER, Apiarist, R. L. PENDER, Manufacturer,
20-21 West Maitland, New South Wales.

TRUSSES on 30 Days Trial

Easy, durable and cheap. A radical cure effected. Send for sealed catalogue.
EGGLESTON TRUSS CO., Masonic Temple, Chicago, Ill.

World's Fair Medal

Awarded my ***Foundation.*** Send for ***free samples.*** Dealers, write for wholesale prices. Root's new ***Polished Sections*** and other goods at his prices. ***Free*** Illustrated Price List of every thing needed in the apiary.

Bell Branch, Mich. **M. H. Hunt.**

Sample Copy Free!

Please Cut Out

This whole Advt. Sign, and Mail.

☞ Please send me the American Bee Journal each week for Three Months. At the end of that time I will remit $1.00 for 1 year's subscription, or 25c. in case I decide to discontinue.

To the Publishers of American Bee Journal,

56 Fifth Avenue, CHICAGO, ILL.

*Name*____________________________

*P. O.*____________________________

*State*____________________________

32 Pages, Weekly!

13 Carloads of Supplies.

This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight. The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for every-body, everywhere, especially

FOR THE WEST.

Joseph Nysewander, Des Moines, Ia.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT.

$1.00 PER YEAR MEDINA OHIO

Vol. XXII. NOV. 1, 1894. No. 21.

STRAY STRAWS

FROM DR. C. C. MILLER.

CARNIOLANS, says E. France, in *Review*, are the best bees for extracted honey.

REPORTS are coming in that white clover is starting nicely. We'll hope for next year.

IN RUSSIA, bees seem to be held as sacred—a thief who steals them being transported to Siberia.

MY HOME APIARY isn't as strong in bees as the other two. Neighboring cider-mills may have something to do with it.

A RUSSIAN authority has discovered that the bee is warm-blooded—its body 85 to 95°, and the cluster in winter from 50 to 53° F.

"WE ARE CONSIDERABLY out of pocket by clinging to golden bees as long as we have."—*Editor Quigley.* [Yes, I think so too.—ED.]

M. BERTRAND, the able editor of *Revue Internationale*, has observed that laying commences sooner in colonies weak in numbers.

IN SPITE OF the assertion that drugs do no good in foul brood, cures that appear credible are reported in *Revue Internationale* by the use of formic acid.

BEES SEEM to be partial to Given foundation, according to experiments reported in *Review;* but what kind of foundation is the Hunt that beats the Given?

SOMNAMBULIST thinks an apron with capacious pockets for carrying scissors, knife, etc., is a good thing in an apiary. I have one in my apiary. Emma wears it.

C. W. DAYTON describes a new escape, "the Stampede," in *Review*, which he says will pass 1000 bees per minute. I got one by mail, but didn't know where it came from.

AN EXPERIMENT reported by Doolittle, in *Progressive*, showed that a colony of 4000 bees working on apple-bloom would store a pound of nectar per hour; but by next morning the weight was reduced more than half.

E. FRANCE indorses R. C. Aikin's view, that the energy of a newly hived swarm is more apparent than real. What's gained in the swarm is lost in the parent colony.—*Review.*

EXPERIMENTER TAYLOR (*Review*) thinks bees prefer sections not wider than 1⅜—1⅝, with separator. That's an argument in favor of the narrower sections used by Canadians.

REVIEWER HASTY says, "No matter how solidly I get combs built down to the bottom-bar, they'll not stay so many years." Can't you keep quiet, Hasty? I hear that enough at home.

A REVOLUTION has taken place in the views of bee-keepers as to what will prevent burr-combs. In replies in *A. B. J.*, 21 think correct spacing will do it, while only 2 think a honey-board necessary.

RAISING WATERMELONS is suggested by Somnambulist, in *Progressive*, as a good business to go with bee-keeping, as the raising and marketing of them comes before and after the busiest time with the bees.

DR. VON PLANTA says the ages of nurse-bees correspond with the ages of the larvæ they feed, the youngest nurses feeding the youngest larvæ Drone larvæ, needing the stronger food, are fed by older nurses from the start.

OBSERVER, in *Progressive*, thinks bee-keeping is more like gambling than any other legitimate occupation—the bee-keeper's always hoping to win next time. I don't like to be called a gambler, but there's no denying the uncertainties.

C. W. DAYTON says, in *Progressive*, that he has given up alighting-boards, preferring the old-fashioned fly-hole in the center of the front of the hive. I don't know whether such fly-holes are good for bees, but I'm sure they like them.

HUTCHINSON quotes Doolittle, and discusses the advantages of brace-combs, and ends up with "but, advantage or no advantage, brace-combs built against the sections or the receptacle in which they are placed can never be tolerated."

S. E. MILLER, in *Progressive*, raises the query whether nurse-bees eat eggs when rearing queens. I don't know about that; but I know eggs disappear sometimes when a colony becomes queenless. Don't think they do if queens are being raised for swarming.

A BEE-SPACE—what is it? ⅜ of an inch will be answered; $\frac{5}{16}$, ¼, and scant ¼. Perhaps a better answer would be, that space in which bees are least likely to put burr-combs or propolis. It used to be considered ⅜, but gradually it has become less, and now ¼ has the majority, I think. [That's right.—ED.]

LAST MONTH I spent a night with a bee-keeper at Lawrence, Ill., who made me feel uncomfortable. He keeps bees in old-fashioned ten-frame Langstroths, fusses less with his bees than I do, and I don't believe he knows more about bees. But he gets more honey than I. Low lands give him annually as much buckwheat as white honey, while I get none; but he beats me on white honey. Is it the location, the hives, or the management?

HERR REEPEN doesn't agree wlth the view GLEANINGS takes of the raking motion of bees —"dancing" the Germans call it. He says German bee-keepers in general consider it a mark of great prosperity, and readiness for swarming. D. A. Jones held it as a sign of swarming, I think within 24 or 48 hours, but I think no one else confirmed it. I think I saw only one or two colonies at it this year, and I don't think they were in condition to swarm. But my bees talk English, not German. [I have seen weak colonies in our apiary going through this washboard act. They were too weak to swarm.—ED.]

GENERAL CORRESPONDENCE

DO BEES TRANSPORT EGGS?

EVIDENCE THAT THEY DO.

By E. France.

At the time of the war I ordered an Italian queen of Martin Metcalf. He sent me a notice that he would send me the queen at a given date. About a week before the time named, I took the queen out of the hive that I intended to introduce her to. In just two weeks after, I received the queen. I put her into a wire cage, and then put the cage with the queen into the queenless colony. On the third day after, I opened the hive with the intention of liberating the queen. I looked the combs over again for queen-cells. I discovered a cell just started, with an egg in it. I made up my mind that the egg came from the queen that was then in the cage in the same hive. I took the queen out of the hive, to see what would come from that egg. It matured all right, and hatched out a good Italian queen. There could be no mistake about it. That one queen was the only Italian I had. Whether the bees put the egg into an embryo cell, or had made the cell around the egg, I can not say. The egg could not have come from a fertile worker. as the colony consisted of black bees, and the egg hatched an Italian queen.

FERTILE WORKERS, AND HOW I GOT RID OF THEM.

Last spring I had two queenless colonies. I gave both of them cards of young brood and eggs, expecting them to raise a queen for themselves. Neither of them did it; but the fertile workers kept laying right along. I gave each of them brood enough to make a good colony, and still they were "no good." I finally got mad, and concluded to kill or cure. Then I loaded up my smoker with tobacco stems, early in the morning, when all were at home, and smoked them all drunk. Not a bee could fly. Then I took out all the bees and combs, and filled the hives up with another set of combs from other hives—brood and honey—the same as I would have done to make a new colony—but I did not give them any hatched bees. Then I took all the bees that were in the hives, or that had been in the hives, and carried them away several rods, and scattered them over the ground. As soon as they got over their drunk they came home, and the next day I gave each a virgin queen. These were accepted in all cases. What became of the laying workers, I don't know. I don't think they ever found their way back, so I think those laying workers are bees that don't go out, and perhaps never did, and so don't know the way back. I was pretty sure that that treatment would cure them. But as I had been putting in good brood from other hives, there were more or less of young bees in the hives, that had never been out, and, of course, they would not know the way back home. So I tried to cure them without, so as to save the young bees. But I will never do it again. As soon as I find I have a laying worker I will take the bees all out, and carry them off several rods, and throw them away. All the bees that have been flying will come back; then give them a queen, or brood from which to raise one; and if they are not strong, give them brood to strengthen them up; but if the colony is very weak, the best way is to use up the combs in other colonies, unless, as in my case, we are short of hives, and want to occupy that location; in that case, treat them as I have described. All that can be saved is the few worker-bees that are present with the laying workers, and quite likely these are few, and not worth much.

SMOKER FUEL.

After trying about all the different kinds recommended, we have settled down to straw and tobacco-stems—about half of each. We get the tobacco stems at the cigar-factories. They cost nothing — in fact, we haul them on the place for fertilizers. The factory-men are glad to have them taken away. Straw and tobacco-stems make plenty of smoke, hold fire well, and the tobacco just takes the fight right out of the bees.

HOW WE STOP THE ROBBERS.

We have never failed to stop the worst case of robbing we ever had, providing the colony being robbed was strong enough to be worth saving. This fall, in taking off my three stories one morning I worked a little too long; and as I smoked the bees down with tobacco I got one colony pretty drunk. Like other drunken beasts they could not defend themselves. It happened that I went to town after working with the bees, and was gone two hours. When I got home the yard was terribly excited, all trying to find where the honey was. The bees were swarming about one quadruple hive, and were tearing away at three of the colonies in the hive just as fast as they could get in and out. In a case of that kind, something must be done, and done quickly, if we save the colonies that are being robbed. I had a large asparagus-bed. I took my scythe and cut a couple of armsful and banked up the hive-entrance with the tops, and then took my sprinkler and wet the tops of the asparagus with cold water, and kept it wet for an hour. By that time the robbers had quit trying to get in. I left them banked up for another hour, and then took away the asparagus-tops. Then the robbing was done, and the robbers never offered to trouble them again. I examined the robbed colonies about sundown the next day, and found that fully half of their honey had been taken out of their combs, so I exchanged their honey-combs for full ones and now they are all right.

I have fought robbers in this way a good many times, and always with success. They can not get in through wet stuff. The bees belonging there think it is a wet time, and stay at home. In the spring, before we get the asparagus-tops, I use straw. It is not so good, but will do.

Platteville, Wis., Oct. 1.

[While I was at France's recently, I believe he used the straw only, as the tobacco-stems did not seem to be on hand then. I was surprised to see it give such good smoke, and last so well. I should prefer to dispense with the tobacco, as it "scents" every thing up so.

Your method of stopping robbing I know will work, because we have tried it. Our plan is, to pull up a lot of long grass, strew it against the entrance, and sprinkle it with water. Wet asparagus, grass, or any thing of a bushy nature, dripping with water, seems to dampen the ardor of the robbers; for a wet bee is in any thing but a normal condition to fight. The inmates of the hive do not, of course, venture out, and are ready to tackle their antagonists—the latter at quite a disadvantage.—Ed.]

RAMBLE 119.

SANTA BARBARA TO LOS ALAMOS.

By Rambler.

From Santa Barbara we roamed along the sea-coast for over 40 miles, passing now and then the dried and whitened skeleton of a boom town. The town of Naples in particular had an uncanny appearance. All there was of it was a ghastly sign, "Naples," silhouetted in immense open letters against the seaward sky. For several miles the vision haunted us, but not to such a degree, probably, as those were haunted who had buried money there under the name of town lots.

At El Capitan we found a famous camping-place—a lonely canyon, noble oak-trees, a rippling stream. We retired here for a day, bathed the dust of travel from our bodies, wrote letters, and fixed up generally for our further progress. Fish were plentiful in the ocean at this point; in fact, much more plentiful there than on our table. We, however, did get a smack of them on our plates. Mr. Wilder brought out all of his fishing-tackle — great hooks and small hooks, and his rifle. With the latter he is exceedingly careless, as you will hereafter learn. This time, while hauling in his throw-line with a red-finned fish at the end of it, a seal, or sea-lion, so called—the kind that inhabit the Aña Capa Islands, and all the isolated rocks of this coast—bobbed its head above the breakers to get a new supply of air; but before he could bob it back again Bro. Wilder had carelessly fired a bullet through its head. That settled Mr. Seal to the bottom of the ocean. The peculiarity of seal-shooting, we learned, on Aña Capa Island, is that, when shot in deep water, they sink to the bottom of the ocean like so much lead. This one performed that same trick, to the chagrin of the shooter, and "me too." I didn't care so much for the seal as to see the manifest happiness of the shooter. All we could do, however, was to watch the crimson spot out there in the tossing breakers, and to hope for better luck upon our next specimen of big game. *We* seal-hunters find there is something startling, too, in beholding a seal's head bob out of the waters. The head and face have something of a human look, and one is liable to think he is in the presence of a genuine mermaid; but *we* seal-hunters get used to those things after a few shots, and mind it not.

In our strolls among the big trees we found evidences of bee-trees, and one had been recently cut and robbed, the bees still clinging to their no longer sweet home. The fact that it paid to cut a bee-tree for its sweetness showed that some honey was gathered here; but the flora visible would lead one to think that bees would ordinarily starve. While thinking of the bees and their product, at our next repast we brought out a fine jar of honey that Bro. Mendleson had given us with his blessing, when we left him; and as spoonful after spoonful disappeared alternately at each end of our table, said I, in heartfelt tones, "May the shadow of Mendleson never grow less." "*Amen!*" said Bro. Wilder, in a loud and heartfelter tone.

After leaving El Capitan our drive was somewhat monotonous; our surroundings and the hills had a dry and parched aspect, while, on the other hand, the ocean appeared exceedingly wet. To wed these two extremes, and to make the land bloom (poetical license) with milk and honey, was a problem we studied upon for many miles.

"Why," said I, "Wilder, just think what a revolution that would make on all this coast—pump the water of the Pacific Ocean away back into the dry interior, and irrigate."

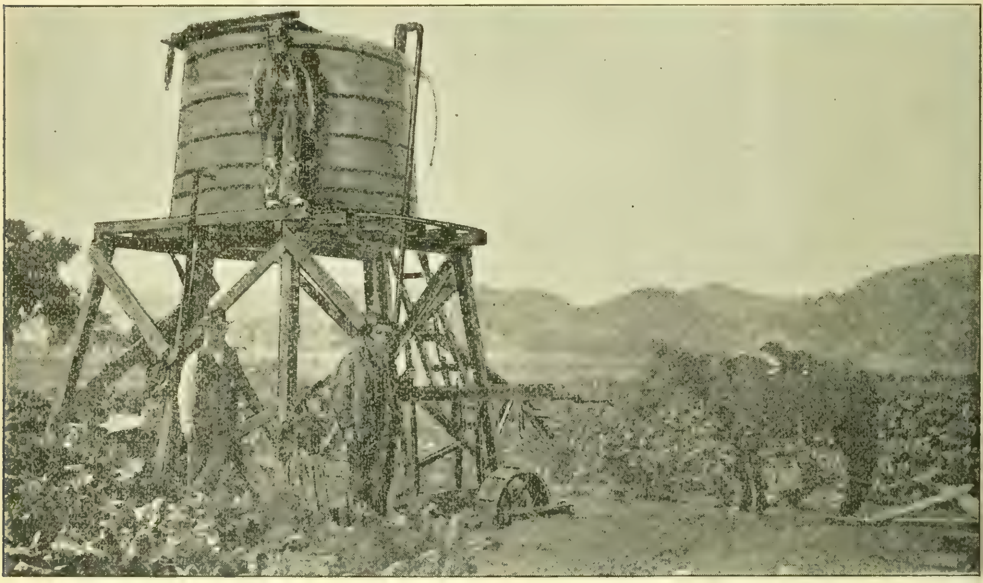
As I cast my eye as far as I could cast it in the distance, and could see no end to the water, "Why," said I, again, "we could irrigate all California ten feet deep, and it wouldn't take half the water in sight."

"Yes," says Wilder, "that's so; but what are you going to do with the salt?"

"Eliminate her," says I. That's the great problem. We did not have the necessary apparatus to make an exhaustive study of the matter, so we leave the problem with the bee-keeping public. There's "millions in it." Wilder and I have the tide-pumping engines all completed—in our eyes. All we want now to make the Golden State more golden is the eliminator.

There, now, I will get down to terra-cotta again, and go on with the original theme which the moisture of the ocean slightly interrupted. At Gainotta Landing, which is also on the edge of the ocean, we turned an abrupt angle, and left the ocean behind us. We here approach the mountains, and find our way into the interior through the Gainotta Pass. Some time ago nature must have rent the mountains in twain here, for the pass is narrow, and immense masses of rock overhang the road in many places. Much could be written about this pass and its earlier history, but I can only mention that Fremont had an experience here with the Mexicans, but came out the victor.

The next obstacle in our way was the Santa Yñez (pronounced *Nez* here, or *Een-yaith* by Spaniards) Mountains, over which we climbed easily, crossed the Santa Yñez River, which is one of those bottom-up rivers—no water in sight; passed the old Santa Yñez Mission, interviewed its ruined walls with the camera, and then passed into the great barley and stock country. The dry weather, however, had pinched the stock out into other fields, and the barley was a light crop except in a few favored localities. It was so short in Los Olivos that we could get none for our ponies, and for the first time on our journey they had short rations for their noonday meal. There is no bee-keeping here over a wide stretch of country. Cattle-ranches prevail, containing ten to fifteen thousand acres each. These large land-holdings are considered a detriment to the country. The owners will not sell into small holdings, and the chance for the increase of population is small. Disintegration comes, however, in many cases, when the original owner dies and leaves a dissipated son or family to man-



MR. HILTON PUMPING WATER, AND IRRIGATING SUGAR BEETS.

age it. It soon dissipates under mortgages, then there is a chance for the small farmer to step in.

At Los Olivos we encountered the whistle of the locomotive again, and followed the course of the rails and telegraph-poles more or less for a greater portion of a day, until we entered the town of Los Alamos. We had this town in mind for several days, for, among the few persons who are scattered here and there as bee-keepers in Santa Barbara Co. is Mr. Joel Hilton. Mrs. Hilton's name had appeared frequently in GLEANINGS and various agricultural papers, as a writer upon bee-keeping topics, and I was quite anxious to meet her as well as Mr. Hilton. After camping near our friend the blacksmith, inquiries revealed the fact that Mr. H. lived only half a mile from camp, and I hastened to hunt him up. Mr. H. being a GLEANINGS man, of course he knew the Rambler, and gave a cordial welcome. Mr. H. was irrigating his field of beets, and, after showing me how it was done with his honest old horse and home-made pumping arrangement, tank, dog, children, etc., I inquired for Mrs. Hilton, and I was pained to learn that she had crossed the boundary into the great future only a few weeks previously, leaving Mr. H. and his four children in mourning. The pall had not lifted from the home; and, as we find in so many cases, when a loved mother and adviser is taken away it is many, many months before the sunshine again lightens the home.

From observation as we entered the Los Alamos country, we pronounced it not a good honey locality. But a ride with Mr. H. one morning into the back country, away from the highways, brought us into a fine sage district, where the black and the purple sage seemed to thrive. Mr. H. informed us that, in this portion of Santa Barbara Co., the sages seemed to thrive in certain districts. Several square miles would sustain several hundred colonies, while outside of this there would be but little bee-forage for several miles. Mr. H. has 300 colonies of bees, in three separate apiaries; and, though the yields are not ever so great as in our southland, they are more certain every year. He had never had his bees starve during a dry season. This dry year he did not expect to get much honey, but he was sure they would get enough to carry them through, and possibly he would get a little surplus. An examination of a few of his hives showed that he was correct in his diagnosis, for we found new honey in the combs. As a sample of what bees can do here, Mr. H. had at one time increased from 40 to 78 colonies, and taken 6000 lbs. of honey. In 1893 his honey crop was 24,000 lbs., from 100 colonies, spring count; increased to 170.

Mr. Hilton expressed himself as always a lover of the bees, and to the bees he owes a debt of gratitude for causing him to move from Iowa to this delightful country. His bees have been more profitable, considering the money and time invested, than his wheat-raising. In the latter crop a drouth might cause a total failure; the owner would be out many days of hard labor, with team, etc., also many bushels of seed; but in a drouth in the bee-business there are no outs—not even starved swarms, in his locality.

After our ride and talk with Mr. H. we settled down to business among the good people of Los Alamos. Over half of said good people are Spaniards of all degrees of color. Our duty was, to take photographs of these dark people and make them look "alle-samee" white folks. We had a hard time of it, as will be seen further along. There were a few resident Castilian Spaniards, as white as Americans. Such a family of musicians we introduced to our camera, and they show such a phase of life among these musical people, in this country of blooming flowers and buzzing bees, that the artist will give the readers a wee bit of a picture of it.

MUSICAL SPANISH FAMILY.

THE NEW BEE-DISEASE OF CALIFORNIA.

STARVATION, AND THE DIFFERENCE BETWEEN "WELL-SUPPLIED" AND "CONSTANTLY FED" COLONIES.

By C. W. Dayton.

I have watched, since early spring, 250 or more colonies having this disease, and, like others, I find it in some *well-supplied* colonies, but I do not find it to continue in *constantly* fed colonies. It was understood that Prof. Cook's cure was by constant feeding, so that the bees would be carrying honey about the hive every day; but where colonies are fed ten pounds to-day, and then no more for ten days or more, in six hours the feed will be deposited in the cells; and some colonies seem to be so miserly as not to remove it, even to save brood from starvation; or else such a method of feeding fails to cure them of their disheartened condition. But it seems to me possible to bring on a second attack. as hereafter suggested.

It is my opinion, that the larvæ do not always die because there is *no honey* to feed with, but because the bees *neglect* to feed it. They appear to be lazy or disheartened. It is plainly apparent, that, after a larva dies, the cell is not cleaned as it should be; but the dead larva dries down and remains in the cell, and, possibly, is the cause of the death of the next larva reared in that particular cell. It is noticeable that the larvæ live while there is plenty of food in the cell, but die about the time the food is exhausted—causing them to straighten out a little prematurely. In industrious colonies it disappeared when a flow of honey came; but in others, which were averse to storing honey under any circumstances, the disease existed in full force throughout the season. The exchange of brood-combs, with the industrious and the less industrious colonies, did not spread the disease. In giving a diseased (and at the same time a scantily fed or supplied) colony a new comb, in the first filling with brood many dead larvæ appeared. Then in feeding sufficiently to produce new combs, no dead brood appeared in the new comb, although it was situated between two old combs which contained a dead and rotten mass. There appeared to be this difference in the fed and unfed and new and old comb, and at different times.

Again, several queens of industrious colonies were exchanged for queens of the most diseased colonies; and now, after four months (time to change the bees), the disease is transferred—the diseased are now healthy, and the formerly healthy have become diseased. In other years I have known colonies to starve by the score; but while only one colony starved outright this season, 75 colonies lived 90 days with scarcely six ounces of honey in any hive at any one time.

BEE-PARALYSIS IN CALIFORNIA HEREDITARY FROM THE QUEEN.

Mr. McEvoy's advice, a short time ago, to keep honey uncapped as a cure for the disease, accords with my observation and practice; but I do not agree that starvation is also the cause of paralysis. Neither do I think phenol a cure for either disease. A neighbor having 104 colonies afflicted with the new disease tried phenol in various ways, with no perceptible effect. I assisted in the operation. By this I do not mean that I visited his apiary and saw phenol used once, but I was there from a half to a whole day, for about 25 different times. It is sometimes remarked of horses that they lack or possess "horse sense;" likewise, I ascribe the cause of this new disease to the bees lacking bee sense. During all the season there have been colonies which were strong in number of bees, and in apparent good condition for storing honey; and, though I opened their hives often, they had not a pound of honey at any time, while other colonies near by stored above 100 lbs. in 1-lb. sections. It was wondered that they would swarm or rear queens at all, but they did both. Queens reared by such colonies invariably produced bees which tolerated the disease. A set of 12 queens, reared by such a colony by the Doolittle method, by the side of 14 reared by an industrious colony, are a shade darker in color. Some are perfect duplicates of the five-banded mother, while the others are exceedingly pale yellow, with a bluish tinge.

My neighbor has kept bees in California 25 years—5 years with Harbison—and "canned up" honey (as Californians put it) by the carload, and he tells me that, in some apiaries, even in good years, he has seen from one-third to one-half of the colonies of this sluggish, unavailable kind of bees. I have thought, that often the large yields we hear of may have been due to the accidental gathering-together of a number of particularly good working colonies, instead of locality or management; and if there is such a vast difference in good seasons, how much difference must there be in starvation years like the present!

Then, again, suppose an apiary should happen to be all of such poor working bees. Such an apiary would not be worth the time taken to count the hives. As well accept a herd of lame, blind, poor, and old horses while fodder is $25 per ton; and the prospective and inexperienced apiarist buys them up and thinks he has a bonanza.

Several of Harbison's old assistants tell me that paralysis existed here early in the '70's, and that their cure was to change the old queen for a new one.

Florence, Cal., Sept. 25.

[Your explanation of the difference between well-supplied and constantly fed colonies seems to explain *why* starvation may not *apparently* but in reality be the cause of this dead brood. I hope it is the solution of the mystery, and why Prof. Cook's experience should be different from ours. With regard to bee-paralysis, I think there is no question but that the queen is the primary cause. But it seems that, after it once gets started in some colonies and in some localities, her removal does not work favorably.—Ed.]

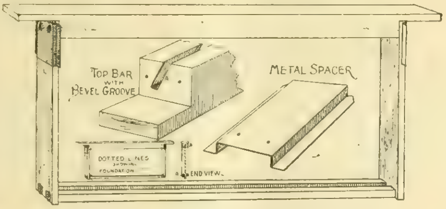
THE PHENICIE SELF-SPACING FRAME.

FASTENING FOUNDATION, ETC.

By C. E. Phenicie.

Mr. Root:—After reading Dr. Miller's article in Gleanings, Aug. 1, headed "Fastening Foundation to the Bottom-bar," I concluded to mail you each one of my self-spacing frames. The tin spacer should be heavier than the one I have mailed you; but my machine will not bend any heavier tin, as it is one that I made in a hurry, just as an experiment, and does not bend them very accurately, but will show the principle.

My claim for them is, that they space the same throughout the entire hive. I must raise objection to any spacer that projects half the space on either side of the frame, as the two outside spaces will be only half the width unless you tack pieces on the inside of the hive and on the division-board, which does not appear to prove satisfactory. I raise two objections to the half or eighth inch space. First, should the queen be on the outside of the frame, near the top-bar, where there is generally a little sealed honey, she is liable to be crushed, as it crowds her into an eighth-inch space; but if she is down near the center or bottom of the comb, she will be all right.



PHENICIE FRAME AND SPACER.

Second, the bees will build brace-comb in this narrow space; then when this frame is placed between two other frames, the bees, instead of tearing them down, will continue them to the next frame; and those remaining on the side of the hive will be treated likewise. These spacers require no extra nailing, as the same nails fasten the frame also.

THE TOP-BAR.

The doctor speaks of grooving the top-bar. You will notice that mine is grooved also; but instead of the groove being square in the bar, it is on a bevel. The foundation, when being bent against the wires, binds on the edge of the groove, thus holding it secure. This is much easier and quicker than with the roller, and will not slip out and lap over, as I have been troubled a great deal when sticking them on, and it always hangs in the center of the frame. I tried one without foundation, and the bees accepted the groove as a comb-guide all right; yet I can not say any thing about that, as I do not consider it a sufficient trial.

THE BOTTOM-BAR.

My bottom-bar consists of two bars, as there are two pieces ¼ inch square, with about ¼-inch space between them. I have not tried the bottom-bars at all, as the thing occurred to me after it was too late to put any of them in; so I shall have to talk theory on this. But I have tried the top-bar and spacers quite extensively, and find them very satisfactory. My idea of having the two bottom-bars is, to let the foundation hang loose between them, and the bees are to fasten it there. As it hangs between the bars, it is always down to them, yet can not settle down on them and wrinkle, whether it stretches little or much.

Now, this is what I should like to have the bees do, and think it no more than right that they should do; but whether they will or not, is to be decided. I should like the opinion of some older heads on this frame.

Tacoma, Wash., Sept. 6.

[The objections that you urge do not hold true in practice. We do not find it necessary to tack pieces on the outside of the hive or division-boards, as you seem to think; and I do not remember that a queen was ever killed in our yard, nor have I heard of one being so killed. I have no doubt your metal spacers, however, will work very nicely; and perhaps in places where propolis is very bad they would separate more easily than the Hoffman widened end-bars. I hardly think your double bottom-bar, with a partition passing between, will work satisfactorily. The bees would fasten the wax to one or both the bars before much sagging would take place, I think, and buckling the result.—Ed.]

FAX.

By Ellery Krum.

Caged four queens together by way of 'speriment, and the first one died in two hours; at the end of fifteen hours wuzen't left a single one alive.

Wuz transferrin' larvæ the other day and came 'crost two grubs growin' in the same cell. The biggest one wuz nearly three days old.

Best place to put cell cups is whare the bees put theirs—on the edges of the combs; and when you dip 'em mold the base to a sharp pint and it haint no trouble fixin' 'em in the comb.

Feed your bees airly as possible and make the sirup purty thin. If the bees git it capped over before it shows enny signs of granulashun it will keep as nice as hunny. I have a sample left over frum last yeer and it is good yit.

Two pounds of fine beeswax is the way my unfinished sectshuns turn out to the hundred. I'd ruther turn 'em into foundashun and gain more in the long run than to sell hunny in tuff combs next yeer at a reduced price.

Nineteen out of twenty-three in the *A. B. J.* favered home market, and only one found it best to wholesale it. That's ezzactly my noshun.

Put it on reckord that a queen will lay her first egg sometimes in a queen-cell; also for the first few days before matin' she often helps 'bout other work. I seen one help a worker, that wuz havin' sum diffikulty in hatchin,' with as much koncern as a mother takes keer of her children.

You kin raze queens by the Doolittle plan without enny perferated zink as follers:—put a sheet of enameled cloth between the upper and lower stories, leavin' the cloth pulled back a little bit at one of the fur corners, placin' the frames at the opposite side. I have queens hatchin' now razed this way, and no surplus hunny comin' in either. By the way, this arrangement makes as nigh an independent colony "up stairs" as you can git it and still have kommunikashun with the lower story.

Physical defects, as a rule, is not transmitted to the offspring; this is why your fine breedin' queen might have bin mated to the scrawniest, skimpiest drone in the hull apiary fer all you know.

Some of us has come to think
Burr-combs is a useful link
Jinin' super to the hive,
And that we should not kontrive
Enny patent to prevent
Buildin' of 'em, but kontent
Our minds while the bizzy bees
Boost themselves with better ease
Up these ladders made of wax
And save time; but it's a fax
Bees build burr-combs jest because
We have fixtures full of flaws
That infringe on natural laws—
But thanks! thick-top bars at last
Konsigns burr-combs to the past.

Alexandria, Ind.

LARGE VS. SMALL HIVES.

SMALL HIVES PREFERRED FOR CUBANS; WHY.

By Fred L. Craycraft.

Since reading the articles on the hive discussion now going on in Gleanings, and having received inquiries from persons thinking of establishing apiaries in Cuba as to the size of hive and frame best suited to this climate, I will give the result of my observations, although I do not claim it to be the best for the North, where the conditions are so different.

It would naturally be supposed that a large hive would be best for the production of extracted honey, where we have such a warm climate and the honey season lasts so long; but it is just the other way, and I have come to the conclusion that a frame 9½ x 14, with 9 frames in the brood-chamber, and seven above for extracting, is about the right size. The brood-chamber, being nearer square, is more economical of heat; and the frames, being slightly deeper, and not so long as the Langstroth, more nearly approach the natural instincts of the bees in building a circular brood-comb.

In most sections of the United States the flow of honey lasts only a few weeks; and brood reared after the honey-flow commences is of little value for honey-gathering; but here the honey season lasts almost three months continuously, making it necessary to keep the queens laying all they will; and as the honey-flow comes during the coldest weather, with the thermometer often hovering around the fifties, and good strong colonies sometimes carrying in eight or ten pounds of honey per day, it is a difficult matter to keep the queens from being crowded out, thereby greatly decreasing the working force toward the end of the season.

The above size of brood-chamber is as large as any good queen will keep stocked with brood; and, being small, it will preserve the warmth of the bees and thus stimulate the queens to lay more; while in a larger brood-chamber the heat would be unnecessarily expended in warming a lot of ends of combs filled with honey.

By using queen-excluders over the brood-chamber, another advantage is gained, as breeding is restricted during the summer, and the bees will fill the upper combs with honey after the extracting season is over, which greatly diminshes the work of feeding during September and October.

I am much interested in the "eight and ten frame hive" discussion, but I should like to hear what some of the "big guns" have to say as to the best size of frame; and has it been proved that the size and shape of the Langstroth frame is the best? I think there is plenty of ground for discussion upon that subject.

The hurricane which swept over this island on the 23d, 24th, and 25th of September, did great damage to the fruit-trees; and nearly all banana-trees, large enough to bloom, were blown down. And, again, from the 2d of October to the 6th the island was visited by an unprecedented rainstorm; and in all we had two weeks of high winds and rainstorms, which made it impossible for the bees to do any thing; and for the first time I have found it necessary to feed, as the bees were running short of stores.

As I also have charge of an apiary of stingless bees, consisting of nine hives, I have been making some experiments with the view of civilizing them; but I have not made much headway, although I have succeeded in increasing them artificially. I do not think they can ever be "elevated" enough to work in modern hives, as the brood-combs are built horizontally, and supported one above another by little columns of wax or resin, and the honey is stored in large cups or cells around the brood, as described by Mr. Pfau, p. 731, Gleanings for Sept. 15. The honey has a slightly different taste from that of the honey-bee; and this taste, I think, is derived from the resinous wax in which it is stored. The bees are about half the size of the Italians. Their abdomens are black, with five narrow yellow bands crossing the back. They are a very pretty bee, but will never be valuable as honey-gatherers.

San Jose de las Gajas, Cuba, Oct. 16.

[I had always supposed that a large hive was better for a climate like that of Cuba; but for the sake of standard size I should be glad to think otherwise. Regarding the size of frame, the Langstroth, in ninety-nine cases out of one hundred at least, seems to give as good results as any other. While it seems to be as good, its particular shape gives it some peculiar advantages. But suppose we say it is no better; the mere fact that it is accepted as standard by common consent for nearly the whole of the United States, Canada, and Australia, is good reason why it should be adopted by beginners and others who are undecided. If other sizes or shapes of frames have decided advantages for certain localities, our columns are open for their discussion. After all, I have a feeling that, if you were to try the same capacity of hive in Langstroth frames, to the extent of 50 alongside of 50 of your own, you would not be able to detect any difference.—Ed.]

NOTES OF BICYCLE TRAVEL.

By Ernest R. Root.

"SCORCHING."

On arriving at Manistee I found that my relatives had all gone to Lake Onekama, some nine miles further north, and thither I went. This is a beautiful pleasure-resort—a lake in a valley, connecting with Lake Michigan. It was here also that I had the pleasure of meeting for the first time Walter Harmer, formerly of Manistee—the one who, some years ago, introduced the small sections of comb honey—those that I believe he retailed at from one to two cents apiece. Our older readers will remember that these sections were made of thin shavings, cut with a jack-plane, off the edge of an inch board. These were nicely folded together in little squares, and of such a size that about 24 of them would go into an ordinary Langstroth brood-frame. The sections were filled with starters, and then placed in a hive and filled out with honey.

Mr. Harmer and a number of others were successful in producing these small sections; and the honey when retailed, if I remember correctly, netted something like 40 cts. per lb., as against 15 or 20 for ordinary comb-honey sections. At the time of my visit at Mr. Harmer's he was not using these small sections. He found difficulty in getting the bees to always fill them out properly, for much depended upon the strength of the honey-flow to induce the bees to occupy such exceedingly small squares. We tried some of them at the Home of the Honey-bees, and met a similar difficulty.

Mr. Harmer is now, or was at the time of my visit, associated with his brother in growing fruit on a beautiful hillside overlooking the lake. There is scarcely a finer view to be found anywhere in Michigan, or in any of the other States, than this one at the Harmer fruit-farm. It was here that Walter had his apiary, and here he was experimenting with various new fixings. He was using the eight-frame Langstroth hive quite similar to our Dovetail hive. He finds that size of brood-nest large enough for his locality. He was not using self-spacing frames, but a self-spacing device advertised a few years ago by Dr. Wilcox, of Manistee. This device is simply a coarse wooden comb, or, rather, a rake, as long as the inside width of the hive, the teeth of said rake being just ½ inch square. For the purpose of moving, these rakes, or spacing-devices, are set down between the frames, one at each end, and directly over the end-bars. Mr. Harmer left these on during the winter and part of early summer, when they were removed, because he found they interfered with the easy manipulation of the frames; but in the fall they were replaced—first, because he thought they helped to conserve the heat by closing up the space between the end-bars near the top; and, secondly, because the bees with the frames thus fastened would be ready for moving at any time.

Mr. Harmer had not produced a large crop of honey, but still a fair one; and what he did secure was of excellent quality, as was attested by some samples he had in a little portable workshop. This latter was so constructed that it could be easily taken down and used at any point where the apiary might be located; for it seems he does not always have his bees in the same place. After looking over some of his five-banders we took a stroll over the fruit-farm, where, as everywhere else I visited, the bee-keeper was making a success of that department.

Mr. Harmer—or, rather, his brother, who owns the farm—has a peat-swamp on top of a hill, and in the center of this is a pond. From this he draws his water through an iron pipe; and for the purpose of irrigating, a home-made hose is made out of canvas, made as used by H. A. March, and described by A. I. R. in Gleanings some time ago. It consists simply of strips of canvas, folded, and sewed on a sewing-machine on one edge, making, as it were, a long tube about two inches in diameter. This was sewn to another tube of the same description until the required length of hose was secured. The whole is then soaked in linseed oil, when it is ready for use. Ordinary hose pipe of this capacity is very expensive; but for the purpose of irrigating, this home-made article is as good as any, and vastly cheaper.

By the way, I must not forget to mention that Mr. Walter Harmer has deserted the bachelor ranks, and taken unto himself a helpmeet. She seems to enter thoroughly into all his plans, and I have not the least bit of doubt that Mr. H. has done wisely in deserting bachelorhood.

Of course, I had a delightful time at this pleasure-resort during the short time I was there, stopping at the cottage of my uncle.

From Lake Onekama I went back to Manistee, and there took the steamer to Chicago. Although riding on a bicycle over Michigan sand is bad, it is not to be compared to feeling not *quite* seasick, but so *near* it as to have no appetite. I made up my mind that next time I would either use the wheel or cars.

On arriving at Chicago late in the evening I stopped at a hotel just opposite one of those sky-scrapers, at the top of which the *American Bee Journal* is issued. Next morning I found myself a little bit the worse for Chicago water. I do not wonder that it is bad, considering the fact that the Chicago River pours right into the lake. You will remember how the Rambler characterized it on page 129 of this journal for 1892. It is simply an open sewer right in the heart of one of the greatest business centers of the world. I am glad to know that there is a movement on foot for carrying the sewage some other way.

Well, the next morning I called upon Bro. York. He was in the midst of his work, getting ready for the next issue of his journal. Notwithstanding this, he dropped every thing, and we had a delightful chat about the bee-publishing business in general, during which we were joined by Mrs. York. When I told friend Y. that I could not stay more than three or four hours, he would not have it so; and it was only by giving him a vague promise that I would come back on my return and make a longer stay that he would let me go; and I did. Later on I will tell you of the York bees, Dr. Peiro, etc.

After a brief chat, and dinner at a restaurant. I started on the wheel *en route* for Dr. Miller's. Mr. York had told me that it was exactly 65½ miles from Dr. Miller's place to the city; and as it was then one o'clock, and not having fully recovered from Chicago water, I felt as if it were a little doubtful whether I could make the run in the afternoon. I was wheeling rapidly out of the city when suddenly I came before a statue of a policeman holding up his hands in silent protest. This proved to be none other than the one erected on the spot where that terrible Haymarket riot of May, 1886, occurred.

Neither Bro. York nor I knew the exact route out of the city to Marengo; but I made up my mind that I should find some one who would know the way; and, sure enough, I was fortunate enough to find a wheelman who was going out my way. He was the business manager of a large concern in Chicago, and was out for recreation. He had not expected to take more than a run on one of the boulevards, but he very kindly offered to pilot me out on the road that would lead me to Elgin, some 45 miles out. This, he explained, was a part of the celebrated century-road course taken by the wheelmen of the city, and, of course, it was just the one I wanted to take.

It is sufficient to say, that I got into Elgin in good time. But now the fun was in getting to Marengo. The wheelmen seemed to have conflicting ideas as to which was the best route. In fact, everybody I met along the way would say, after I had taken one way, that I ought to have taken the other. From the best information that I could get, I finally, at dusk, got within 12 miles of Marengo, knowing that I had still gone enough miles, if I had taken the right road, to have carried me to the home of Dr. Miller. Very fortunately, I found a friend who outlined for me very carefully the road I should take. He told me that I should follow that road and take the second turn to the right; pass two four-corners, and take the second road at the left at the next five-points. After I had gone on a distance I inquired of a farmer the road to Marengo. He told me that I should pass by the second turn and take the third, and with such assurance that it seemed to me he must know what he was talking about. Of course, it was my luck that I followed the advice of the wrong man, and took the wrong turn; but the road proved to be so bad that I knew it could not lead to a town of any considerable size. I retraced my course, and finally went back to the second turn, and then anxiously looked along the road to see a light; but everybody had gone to bed. I finally met a man who told me that, in his opinion, I ought to have taken another road. I finally began to be disgusted with all human nature, and particularly with my own. The night ride was exceedingly unpleasant; and an occasional yelp of a dog, rushing out as if it were going to tear me to pieces, did not add to my pleasure. But I pursued the road, and made up my mind that I would bunk myself in a haystack all night, when, lo! came the four-corners, and in a little while after the second four-corners, and finally five-corners. Arriving here it was a conundrum which road I should take; but fortunately I took the right one, and somewhere about 10 o'clock at night I was trying to gain admission to the home of Dr. Miller, having gone, as nearly as I could figure it, over 80 instead of 65½ miles.

I must not forget to give a "good one" on Dr. Miller. When I reached Marengo I was a little turned around, and had to inquire the way to the doctor's. Approaching a small boy I said, "Can you direct me to the home of Dr. C. C. Miller?" "Oh! yes, sir," he replied. "You go down this road, pass over two hills, and then you'll come to a great big overgrown hedge-fence and a whole lot of weeds and things. This is the place. The house is back from the road, and the yard is all full of stuff. You can't miss it."

To be continued.

CALIFORNIA ECHOES.

By The Rambler.

Glad to see progress on the sting-trowel theory. It now reaches the stage of supposition; next stage, 0.

What Mr. Pfau writes about Costa Rica gives me a desire to ramble in that country. Stingless bees and wax production, and various other things, seem to be fascinating subjects.

That is a dangerous subject you are touching upon now in GLEANINGS in relation to feeding sugar upon the absorption plan. It much simplifies the steps toward sugar comb honey.

Mr. Editor, Jr., that's a very true observation of yours about the openheartedness of bee-keepers, or something to that effect. Now try California on the wheel, and you will find the social frame of mind of the Californians unequaled by any.

Those who are investigating the house-apiary plan can find such house-apiaries made according to nature's plan, and large enough to accommodate a large number of colonies. A hollow redwood, some twelve or fifteen feet in diameter, would fill the bill.

We shall soon discover who Somnambulist is. He came near giving himself away in the last *Progressive*. He says he chews his cud. Now, cows, sheep, and goats do that very thing. Just one more slip like that, and he will give himself away. I bet he is a goat.

One advantage derived from a failure of the South California honey crop is, that it is a splendid opportunity to try the relative merits of the different feeders. If inventors have any thing new in that line, send samples to any bee-man. They all want to use them here.

Mr. Rasmussen must be a very systematic man to carry around all of those things he makes use of in the apiary, and be able to lay his hand on them any minute. Let's see—magnetic tack-hammer, spring clothespins, three-tined table-forks, and a board that might be termed his anti-boiler, smoker, jack-knife, etc.

I note that some one has discovered that the cutting-off of the stings of two or more queens will cause said two or more to live in harmony in the same hive, and lay eggs all the day long. Well, that's no new discovery after all. The Rambler mentioned the point—I don't say fact—somewhat over a year ago. The idea came from Mr. Williamson, a live bee-keeper of Redlands, Cal.

The Rambler came near having a wheel craze before starting on his tour of the State; but that squelched it for a while. As I near home again the craze seems to come on. But there is one insuperable obstacle, it seems. You who are expert can perhaps explain it away. How can I carry my 6½x8½ camera and tripod, plates, etc.? I *must* carry that camera. I guess the wheel must go.

We have heard many yarns about the immense amounts of honey found in caves in California; but it seems that the inventor of yarns has never investigated the redwood capabilities. There are hollow trees among the immense redwoods that would house immense colonies, and an immense amount of honey; but, of course, such colonies are not found here. The bees take to the little hollows.

Bloomington, Cal.

THE NORTH AMERICAN BEE-KEEPERS' ASSOCIATION; QUARTER-CENTENNIAL MEETING AT ST. JOSEPH, MO.

A PROFITABLE AND SUCCESSFUL MEETING.

By J. T. Calvert.

A goodly number of bee-keepers were present when the opening session of the convention was called to order by Pres. Abbott. Among the number might be seen the editors of the *American Bee Journal*, *Canadian Bee Journal*, *Review*, and GLEANINGS; and at the later session, editors Leahy, of the *Progressive*, and Stilson, of the *Nebraska Bee-keeper;* Christopher Grimm, brother of Adam Grimm, who were both veterans in bee-keeping; the redoubtable Straw-gatherer, C. C. Miller; J. Van Deusen, of Sprout Brook, N. Y., maker of flat-bottom foundation. Certainly we had the elements of a good bee-convention already.

The first thing on the program was the calling of the roll of members. As each name was called a response was expected, telling where he was from, how many bees kept, how much honey secured, and what other business he followed in connection with bee-keeping. The answers revealed a rather scanty crop of honey. Those having the big crops of honey were either too far away or too busy taking care of their crops to attend the convention. The

States nearest the place of meeting seemed to have the least honey. This, doubtless, accounts for the comparatively small local attendance. There were not more than about seventy persons present during the convention.

Not the least profitable and enjoyable part of the convention was spent between the sessions, meeting face to face those whose names had become familiar, renewing old acquaintance, and making new ones. Right here let me say that, if any one stays at home from these conventions thinking he can get the full report in print, he makes a great mistake. The personal contact with other bee-keepers, and the interchange of thought and personality, face to face, is worth vastly more than the mere report of proceedings with full report of papers read.

Some practical and valuable suggestions were brought out in a discussion of questions from the question-box, which was taken up at nearly every session. On the question of what race or strain of bees were the most profitable as honey-gatherers, the extra yellow (or five-banded) bees were pretty generally scored. They had very few advocates. There seemed to be a marked difference between extra yellow bees produced by crossing with Cyprian blood and those reared from sports of the Italian race. The former were better honey-gatherers, and, as a rule, not so gentle; while the latter, being a mere sport, were not stable in any thing, and were not to be relied on.

"The latest information on bee-paralysis" called out various testimony. Different ones had tried various remedies, with indifferent success; the majority having had experience with it, agreed that changing the queen was the surest cure. From the testimony gathered, there seems to be more than one malady with somewhat similar symptoms, or more than one phase of the same malady. It was generally agreed that we don't know very much about the disease and its proper treatment.

How to feed bees which are found with insufficient stores in winter, or too late to feed by ordinary methods, called forth from Pres. Abbott his method of feeding, which, he says, has never failed with him. Simply make a cake of sugar candy from granulated sugar, just as you would make maple sugar, and place it over the cluster on top of the frames, and under the quilt and packing. It is the purest sweet in the best form and the right place, and insures a perfectly healthy feed in the most accessible place. He said he had used this method every year for many years, and never knew it to fail.

How to winter bees to prevent spring dwindling was answered by Pres. Abbott, by saying, "Feed as I do, with sugar candy." E. Whitcomb, of Friend, Neb., gave a cause and cure for spring dwindling that may be new to many. He said that, when brood-rearing begins early in the spring, a great deal of water is needed to prepare the food for the larvæ. The bees are generally located in a warm nook where they get the sun's rays, and, when the hives warm up, the bees fly out for water. If they have to go and hunt for it wherever they can find it, which is usually the case, they are likely to encounter cold winds which chill them so they can not return to the hive, and they perish; or the cold water they find may also chill them and prevent their return. Flying bees at this juncture are of the utmost importance, and this heavy loss of flying bees from being chilled in search of water is the prime cause of spring dwindling. The remedy is, to provide drinking-places for the bees, just as carefully as you provide for other stock. It is just as needful. Take a board about six inches square; cut grooves in the form of a cross, reaching nearly to each corner, and crossing in the center. Prepare a level rest for this board in a sunny place near or among the hives. Fill a one or two quart Mason jar with water, a little sweetened, for the first few days, till the bees get used to coming to the place. With cap removed, lay the board on the mouth of the jar with grooves next the jar. Then invert the whole quickly, and set the board on the rest provided, with the jar upside down on top of it. The bees sip the water from the grooves, which will be kept supplied from the jar as needed. The sun will warm up the jar of water as soon as the hives are warmed so the bees can fly out. They haven't far to go for their supply of water, and it is not cold enough to chill them, so they can return to the hive, and spring dwindling will be prevented. Mr. Whitcomb said he had been using this plan for several years, and has had no spring dwindling. He has also stopped the ravages of that malady in other apiaries which were rapidly failing, and they had had no trace of the trouble since. You will be astonished, he says, to find how much water the bees will use in a day. This water should be given fresh at least every other day. It is just as essential to provide water for your bees as for your horses, cattle, sheep, and other domestic animals.

"The best honey-packages for retailing extracted honey" called forth various opinions and preferences. What was liked best in one place would not do at all in another. It was largely a matter of education of the trade and consumer. Many used the Mason jars, pints and quarts; others, the Muth square jar; others, tin pails. A package that has value for other uses in the home, when emptied, seemed to be the most popular in many places, and the Mason jar rather took the lead on this account.

There were a number of valuable papers, prepared at the request of Pres. Abbott and Sec. Benton, on bee-keeping in various other honey-producing countries, as Canada, Germany, France, Australia, Cuba, etc. Most of these were read at the convention, and all are to be published in full in the report of the meeting.

The constitution of the North American was taken in hand by a committee of five, and thoroughly revised and simplified. The old by-laws were entirely eliminated, the new constitution incorporating every thing that it was thought of sufficient importance to retain. A movement was inaugurated to increase the membership of the N. A. B. K. A. by offering something besides membership for the one dollar annual dues. A resolution was adopted looking to this end.

There were four applications for the next meeting—one from Lincoln, Neb., supported by various documents from the city organizations. A telegram from Denver, Col., signed by various commercial interests; an urgent invitation for Buffalo, from Vice-pres. O. L. Hershiser; and a strong plea for Toronto, Ont. As the last-named place had a partial promise of the convention at Chicago last year, it was decided to go there during the Toronto Industrial Fair, in September, when low rates of travel prevail, and a large attendance assured.

The officers elected for the coming year were: President, R. F. Holtermann, Brantford, Ont., editor *Canadian Bee Journal;* Vice-president, L. D. Stilson, York, Neb., editor *Nebraska Bee-keeper;* Secretary, W. Z. Hutchinson, Flint, Mich., editor *Review;* and Treasurer, J. T. Calvert, Medina, O.

As has usually happened in the past, when we have depended on the certificate plan for reduced railroad rates, we failed in having sufficient certificates to secure the reduction. Notwithstanding the repeated requests of the president and secretary, not a few omitted to secure the certificates, and only forty-eight were presented.

One point was several times emphasized during the convention; and that was, the necessity of encouraging in every way the consumption of honey, especially by working the home market. Offer your customers only a choice article of honey, and ask a good living price. Explain the advantage of healthful honey over other sweets usually used, and enforce your point by leaving a sample to try, even if you don't get pay for it. You will very often be rewarded for such effort by gaining permanent regular customers. Never get out of choice honey. If your bees don't gather all you need for your local trade, obtain a supply from other producers which you know to be pure, and which you can guarantee as you do your own. As bearing on this subject, we give in full in the next column the paper read by Mr. George W. York, editor of the *American Bee Journal*, on the subject, "Disposing of the Honey Crop."

This brief report of the convention has been hastily written from memory. I did not expect that the necessity of my making a report would arise, and did not take notes with that end in view. A brief report from the senior editor was expected, and may still reach us in time for publication in this issue. I have not attempted any thing like a full report, but have simply tried to give the main points of interest, and items which impressed me as being important.

In conclusion, let me urge those within reach of Toronto to begin *now* to plan to be present at the next meeting in September, 1895.

DISPOSING OF THE HONEY CROP.

AN ARTICLE READ BEFORE THE ST. JOSEPH CONVENTION,

By George W. York.

Page upon page has been written on the subject of marketing honey; for all realize that, unless it is well sold, there is no profit or just remuneration for the labor and skill involved in its production.

A successful marketing of honey presupposes its good quality, and suitable condition for proper and satisfactory handling. Possessing these two very important factors, the honey is then ready to seek the much-desired customer.

Upon what market shall it be placed? Aye, that's the question! Shall it be disposed of in the home market—probably among the producer's friends and neighbors—or shall it be shipped to the nearest large city to find purchasers? Both ways have their advantages as well as disadvantages. So much depends upon the producer himself, that what might be best for one bee-keeper would be all wrong for another equally successful in honey-production.

Each producer, of course, desires to realize the most money possible for his crop. Upon that point all will agree. But how about the city market for such an object? The city honey commission merchant, as a rule, if he does any business at all, is an overworked or overcrowded man. Imagine, if you please, 100 different lots of honey being shipped to him from various parts of the country, in different conditions, and all coming so as to be in stock at the same time. Now, it will be utterly impossible for him to give to each shipment equal attention, and some of them must of necessity be neglected, or await their turns. In the meantime, some of the shippers may notify him to hold their honey for a certain price. Then, of course, the honey of those who do not give any definite instructions as to price will be sold first, and probably at a lower figure. By that time the market is practically supplied, and the rest of the honey in the commission merchant's hands must be held, or the price lowered in order to at all effect sales. Thus it will be readily seen that, at best, selling through a city commission firm must often be quite unsatisfactory, especially as there is so much to risk in shipping honey lest the combs be broken down and thus be ruined, or the extracted-honey packages may leak, and in that way cause loss.

I fully believe that the best solution of the question will be found in the home market, where the producer can personally look after the details of the work; and, although unable to do the actual retailing himself, he can so supervise it as to realize the largest proceeds from the sale of his crop of honey.

Of course, it requires a good talker to sell honey, as well as any thing else that has merit which needs to be shown to the desired purchasers. But as nearly everybody likes to eat honey, it should not be such a difficult task to dispose of some in nearly every home visited.

As to the price to be asked, certainly the city market quotations should not govern; for, as I have shown, that market may have become overstocked, and for the time being the price lowered to such an extent that there could be no profit whatever to the producer.

It has been suggested that, unless a good price be asked, it will not be secured. And there is more truth than poetry in that hint, though, if the price asked be too high, there will also be fewer sales, and consequently less money obtained, but more honey left on the producer's hands. It seems to me that comb honey, in most home markets, should bring not less than 20 cts. per single section, or six sections for $1. Extracted honey should retail, per single pound, at 15 cts., or 8 pounds for $1. These prices certainly are not high, and yet probably large enough to sufficiently reward any reasonable producer in a fair honey season.

There is much in education in this matter of the price of honey, as well as to its constant use in the family. By starting out rightly, a better price can be secured and maintained, and also more sales be made; while if there is a wrong beginning, it will be well nigh impossible to correct it later on. By all means, study the consumer's ability to pay; supply a pure article of honey, put up in an attractive form, and there will be little trouble about future orders after the first purchase is made and used.

I think that bee-keepers who have a home market well worked up often make a very great mistake when they allow themselves to get out of honey for sale at any time of the year; for if a regular customer can get no more honey from the producer who has been supplying him, he will likely apply at the grocery store, where he may be supplied with a mixed article at a less price, and also correspondingly inferior in quality, though it may, after a time, give partial satisfaction. The result will be, that, the next time the honest producer wishes to sell that customer more honey, he will expect to furnish it at very nearly "store prices," for a superior article. To avoid such an unfortunate condition of things, I would always have honey on hand, even if it be necessary to get it from a bee-keeper at a distance, but always being assured of his honesty and reliability.

I am sure that the home market for honey has undreamed-of possibilities for successful development; and the wide-awake, progressive twentieth-century honey-producers will find in it a veritable gold-mine in exchange for their pure golden honey—nectar fit for the gods, and hungry humanity's best food and medicine.

KINGBIRDS.

THEY EAT DRONES RATHER THAN WORKERS.

By C. W. Dayton.

Referring to your editorial about kingbirds, on page 767, I would say that none appeared in my locality until about the first of April, and then they came in numbers almost equal to blackbirds, and began a raid upon the drones and kept it up until about the 15th of July. I shot two or three hundred; and in examining a dozen or more I found drones in their crops every time, but no workers. But I found that they took workers occasionally from the flowers a distance from the apiary. About the middle of July they ceased catching bees entirely, and only bugs were found in their crops, although drones were flying at the same time. The California kingbird is about the same size as in the East, but is of an entirely different color, and has a very different song. They were here a month before I recognized them as old competitors in the bee-business. They seem to depend upon bees for a living here more than in the East, probably because of the dryer climate and consequent scarcity of other insects.

QUEENS GETTING THROUGH EXCLUDERS.

Regarding queens getting through excluders (page 766), I would mention the rearing of several batches by the Doolittle-Atchley method, with 18 to 20 queens in a batch. Although the cells were very regular and uniform in size, nearly always there were from one to four queens which were small and slim. After fertilization, their bodies became fully as long as any of the others, but preserved their original slimness. These queens are excellent layers, but I have my doubts as to their holding out to long usefulness.

BROOD IN SHALLOW CHAMBERS.

I also notice what you say on page 758 about difficulty in rearing brood in shallow chambers. That has been my experience—takes pressure to induce them to occupy the second one. I give each colony a full-depth story, and also have one or more half-depth stories. In the spring, give the full story for brood-nest, and at the opening of the harvest raise the full story for surplus, and confine the queen to the half-depth story below. This does well in working for extracted honey, but for comb honey it is not so favorable. It pays me best to work for both comb and extracted honey. In a long slow yield I can obtain as much or more comb than extracted. Such years as this the comb brings 10 cts. and the extracted 5 cts. per lb. Using full-depth story below, all the harvest, would give more extracted; but with shallow contracted brood-nest it gave more in combs. In fact, full story below, all through the present season, gave very little surplus of any kind. This was proven in my own apiary and neighbors'.

Florence, Cal.

LADIES' CONVERSAZIONE

FEEDING AT DR. MILLER'S.

HOW THE JOB WAS SIMPLIFIED.

By Emma Wilson.

Usually I have dreaded the time to come when I knew we should have to feed our bees. Nearly every thing about the house would be sticky, doorknobs included, to say nothing about the amount of work involved. But this year it has just been fun—not one bit of muss about the house. I have thought so many times, while we were feeding this year, "Oh how much extra work we have made for ourselves in former years, all for not knowing how!" Then I wondered if we were doing as much hard work in other directions just because we did not know how, and if that were the reason that bee-keeping was such hard work.

I'm going to tell just what we did this year. About the first of September we visited each apiary, and weighed each hive to find out just how much feed each colony would need for winter. Just the hive and contents with cover were weighed, without the bottom-board. Under the record of each hive in the record-book the weight was put down. These weights varied from 26 to 62 pounds. Some colonies had more than one story, but only the weight of the upper story was taken.

If a colony weighed 47 lbs., it passed muster without feeding; but if it weighed less than 47 lbs., it was given sugar enough so that, when the sugar was brought to the consistency of honey, the total weight was brought to 50 lbs., figuring on the basis that 5 lbs. of sugar make 7 lbs. of syrup of the consistency of honey. That is, 5 lbs. of sugar were given for every 7 lbs. the colony lacked of weighing 50 lbs. For example, a colony that weighed 36 lbs. had 10 lbs. of sugar given it.

We next brought out our Miller feeders, and stuffed the opening where the feed goes through (which in the original Miller feeder is ¼ inch or more), with cotton cloth. Old pieces of cotton flannel and part of an old bed-spread were what we happened to have handy to use for the purpose; and, when properly packed, they worked tip-top. I was the one who did the packing; and, when the most of them were packed, Dr. Miller thought I was packing them too tight. So I packed the rest much looser.

We fed the Hastings apiary first. We took along 24 feeders and 3 bags of sugar weighing 100 lbs. each. We also took along a tin pail holding 11 lbs. of sugar, another holding 4 lbs., a can holding 3 lbs., and another holding 1 lb. With these we could quickly measure the right quantity of sugar for each colony.

The first thing after reaching the apiary, we put on the feeders, leaving the covers off; and into each feeder the proper amount of dry sugar was put, the feeders being still left uncovered. After all the feeders were supplied with sugar, we poured on a pint of water to each pound of sugar, put the covers on, and came home.

The ones that were packed first were all right, with the exception of one or two which, after being used for a while, swelled so that the syrup would not pass through. The second lot—those that were not packed so tightly—let the water through too fast, and left dry sugar, and more water had to be added two or three times, so that some of them had two or three pints of water for every pound of sugar.

We fed in all about 1500 lbs. of sugar; and I can hardly realize that we have fed it, it has been so easily done. Just try it for yourselves, and see how nicely it works.

Marengo, Ill.

[Yes, indeed, the new way of feeding is a great convenience as well as a great saving of labor; but we could not make the Miller feeders work nearly as well as the inverted crocks. The trouble was, we could not get the cloth stuffed *just* right every time.—Ed.]

TRADE NOTES
BY EARNEST R. ROOT.

THE RIDDANCE OF BURR AND BRACE COMBS.

SEVEN-EIGHTHS THICKNESS OF TOP-BAR AN UNNECESSARY EXTREME; PUTTING IN FOUNDATION.

By A. B. Anthony.

I sent you by freight a machine for putting foundation into brood and extracting frames. To use, it takes three lamps to heat the plate, and the back feet should press against the wall to keep the machine from sliding away when pushing the foot lever.

Yourself and Dr. Miller have quite a good deal to say in Aug. 1st Gleanings about top-bars, and the way to fasten foundation to them. The only true way to fasten foundation to either sections or frames is on the melted-wax plan.

You know that, and you ought also to know that not only for cheapness but for the bees and the bee-keeper, a top-bar should be flat on every side. You recommend a top-bar ⅞ inch thick, to prevent brace-combs. I, at least, think that is why you make bars so thick. *Brace*-combs give me but little trouble. It's the *burr*-combs that are so troublesome; and a 1⅛ width of top-bar and ¼-inch space between stories practically fixes them. There's a limit to every thing. Frames were made to hold combs of brood and honey; and when we have gone beyond the requisite strength necessary, we have gone beyond the limits. If a top-bar is 5/16 inch thicker than necessary, it means that much waste on each and every frame, hive-ends, and hive-sides; lower story and upper (when extracting), or enough useless lumber to make a board, and binding for a bee-escape.

Dr. Miller thinks he wants a thick top-bar for the bees to wipe their feet on. If he's willing to pay for lumber for that purpose, he needs to be told that he had better put it on the under side of the sections, and let it support them. Also that, in a couple of years, a top-bar will be too dirty to wipe feet on. It gets dirty *in* the hive, never outside, and it is in a hive 365 days in a year, while if it is in the super it need not be on the hive a tenth that long. To recommend a top-bar ⅞ thick for the L. frame is as bad as the advice the Dadants gave us when they told us to nail a second board on the back side of hives to keep the cold northwest winds off. Why didn't they tell us to make that part of the hive out of plank? It would have been just as well, and better, on account of rotting! But then the Dadants are all right, for you know they told us in the back part of their book, that, from all the advice and information we received, we should always try to sift the grain from the chaff—their own included.

I have always felt and held it as a right, that, if one gets up a useful implement, and it is manufactured and used by many, the inventor should have some compensation. But I'm going to say that, if this or any of the other machines I have sent you in the past should suit you, and you felt that you would like to manufacture them, do so; and if you meet with many sales, and then feel that you can pay something, all right and well. But if you should not feel that way, and should sell many machines, all would be well also. In this last machine sent you, you'll find that three lamps heat the plate none too hot. A gasoline-burner, made expressly for the purpose, would be better; but for myself I made the lamps do nicely in putting in nearly 100 lbs. of foundation. I could make a better machine than this, especially with a burner, but it would not be so simple and cheap.

Coleta, Ill., Aug. 15.

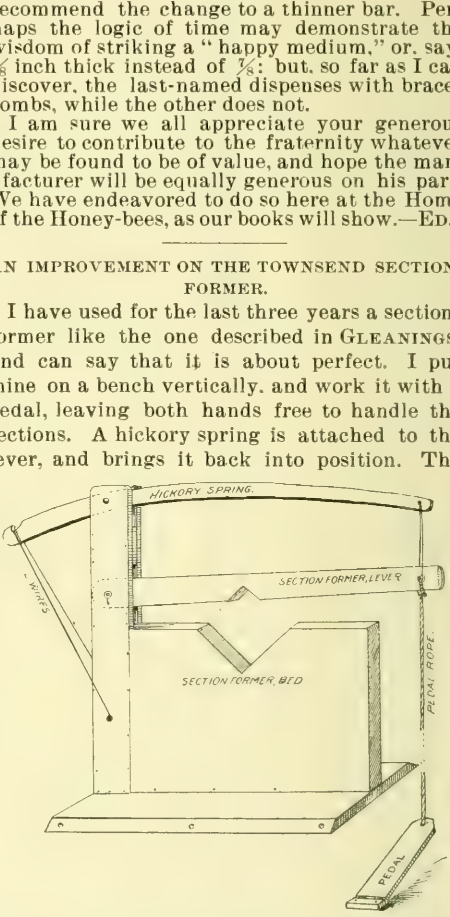
[The principle of the machine sent by Mr. Anthony will be understood when I say that it is the same as our Daisy foundation-fastener, shown on page 19 of our catalog, or those fasteners that make use of a heated plate, with this difference, that it is constructed on a larger scale. The plate is as wide or as long as the edge of the foundation to be fastened to the brood-frame top-bar, and for this reason requires three lamps to heat the plate along its entire edge. I did not try the machine, for I was satisfied that it would work; but I do not think it could ever come into general use, on account of its expense and the trouble with fussing with three kerosene-lamps. It would cost, when placed upon the market, not much short of $5.00; it is bulky, and I doubt whether it will do the work faster than the little foundation-rollers costing only 15 cts., and which are small enough to be put into the pocket. No, friend A., if some have gone to extremes in the depth of top-bars, you have gone to extremes in the construction of so elaborate a machine.

But I like your style of talking out plain, even if you do tread on my toes some. If I thought you were right I would not hesitate to recommend the change to a thinner bar. Perhaps the logic of time may demonstrate the wisdom of striking a "happy medium," or, say, ⅝ inch thick instead of ⅞: but, so far as I can discover, the last-named dispenses with brace-combs, while the other does not.

I am sure we all appreciate your generous desire to contribute to the fraternity whatever may be found to be of value, and hope the manufacturer will be equally generous on his part. We have endeavored to do so here at the Home of the Honey-bees, as our books will show.—Ed.]

AN IMPROVEMENT ON THE TOWNSEND SECTION-FORMER.

I have used for the last three years a section-former like the one described in Gleanings, and can say that it is about perfect. I put mine on a bench vertically, and work it with a pedal, leaving both hands free to handle the sections. A hickory spring is attached to the lever, and brings it back into position. The whole thing cost me only 25 cts. Put the sections in front of the block, groove up, and see how fast you can fold them. You will be astonished.



G. Gross.

Milford, Wis., Aug. 13.

[Since I gave a cut and description of the Townsend former, two others, including friend G., write that they have been using this principle for the last three years. I am sure that the foot lever and spring will greatly increase the effectiveness of the machine. It is so simple that almost any one can work it.—Ed.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N. Y.

DO FIELD WORKER-BEES TRANSFER HONEY TO YOUNG BEES?

On page 731 of Gleanings for September 15th I find two questions referred to and asked of Doolittle; and, with the permission of the editor, I will answer them in this department, instead of using questions sent in, for this number of Gleanings.

The first is the one referred to me, instead of the editor's answering Mr. Churchill. Mr. C. says, "Some time ago I read how bees gave honey to the young ones that were too young to fly." I hardly think Mr. C. read accurately enough, for I have never known of any one who believed that bees too young to fly were of any service in the hive, unless straightening out and taking honey to help them do so could be called service. A bee can fly when from 12 to 20 hours old; and if a bee under this age ever enters into any of the work of the hive, I have never discovered it. The claim put forth, and the one to which Mr. C. alludes, I presume, is this: Except in times of abundant yields of honey, the field-bee, on arriving inside the hive, gives its load of nectar to some nurse-bee, rather than disposing of this load by depositing it directly in the cells of the comb. That this claim is correct, I have verified time and time again by laying beside a single-comb observatory hive, hours enough, when put together, to make days. If I mistake not, Elisha Gallup was the one who put forth or discovered this fact first, and the same can be found in the early volumes of the *American Bee Journal*. As I have told all of the minutiæ of this matter several times in the bee-papers, I will not go into them here, except to say that, as soon as a loaded bee enters the hive from the field, it hunts around among the nurse-bees to find one which will take its load, putting out its tongue with nectar upon it to determine who will take it. If the nurse-bee who is thus approached does not have its honey-sac full already, we immediately see the nectar passing from the field-bee to the nurse-bee by way of the tongues of both. After a little resting, the field-bee goes forth to the field again, never as much as putting its head into or near a cell of the comb all the while it was in the hive. This nurse-bee may be anywhere from two to sixteen days old; and while of this age it is termed a young bee, although I have the impression, from my many observations, that the bees which do the most of the evaporating of nectar are from six to fifteen days old.

Again, Mr. Churchill errs, or is not accurate enough, when he assumes that a new swarm is composed of old bees; for the truth is, bees of all ages go out to make up the swarm, as is very easily ascertained by any one who will use his eyes with the view of finding out about this matter. I have seen the ground in front of a hive that was casting a prime swarm, covered with hundreds of bees under 12 hours old, which tried to accompany the swarm, but were not able to fly, so they ran out on foot; and on hiving the swarm, a little inspection showed that it was composed of bees of all ages, from those 20 hours old, or the bees just barely able to fly, to those with ragged wings, just ready to die of old age. In this, as in all nature, God made no mistake when he showed bees how those of all ages should accompany the swarm when they heeded the mandate, "Go forth, multiply, and replenish the earth."

Once more: Mr. C. says, "I have always noticed, as I remove quilts from sections or extracting-combs, that almost every bee is an old one." I should like to know how he knows they are "old ones." If he will try the experiment of changing a black queen for an Italian about the 20th of June some year, noting the time the first Italian bee hatches, and on the forenoon of the 14th day from that time looking at the entrance of the hive, he will find none but black bees issuing from the entrance; while if he removes the quilt from the surplus-arrangement he will find nearly all the bees there to be Italian. If he does not so find it, his experiment will prove different from any I have ever tried, and I have tried such experiments several times. All the experiments which I have tried along these lines have proved Gallup to be correct when he gave this to be the rule in these things: "Three days in the egg form, six days in the larval form, and twelve days in the chrysalis form, making a period of twenty-one days from the egg to the perfect bee. Very warm weather will hasten the matter, while very cool weather will retard. The hatched bee does nothing but feed itself for the first day or two after hatching, when it commences to become a nurse-bee, preparing chyme for the larvæ, evaporating nectar, secreting wax, building comb, etc., till it is 14 to 16 days old. With a colony in normal condition, the young bee takes its first flight or playspell, marking its location, voiding its excrement, etc., when six days old, if the weather is favorable, doing this from 12 to 3 p. m., and continues these playspells occasionally till it is from 14 to 16 days old, when it goes out into the fields as a field-worker, does no more of the inside work of the hive after becoming a field-worker, unless forced to by a lack of nurse-bees from some reason, and dies of old age at from six to eight weeks from time of hatching, very few bees ever seeing seven weeks of age during the working season." In the above, I may not have given the exact wording of Mr. Gallup, but have the substance. as I quote from memory, not having the time to hunt up the letter containing it, which he wrote me in the sixties. No beginner, or older apiarist, should be without the knowledge contained in the above from Gallup, for upon it hangs much that goes toward making the management of an apiary successful.

PURE ITALIAN BEES AND THE FIVE-BANDED STOCK.

The other question asked is by Mr. Low, and immediately follows Mr. Churchill's article, and reads as follows: "I should like to ask Mr. Doolittle this question: Can a five-banded queen be bred, or a queen whose bees are five-banded, from pure Italian queens?"

I unhesitatingly answer no, for the simple reason that there is no such thing as a *pure* Italian bee or queen, when viewed in the sense of a pure race or variety, as the German or black bee is pure. At best, the Italian bee is only a thoroughbred; and that these five-banded bees have been produced from what was originally only three-banded leather-colored bees is a good proof that the above assertion is correct. Perhaps it may be well for me to give right here a bit of history. which I have hesitated for a long time about giving, as I never wish to have a seeming desire to take away the laurels from any one. The history is this: In the early seventies, H. A. King, then of Nevada, Ohio, and Jos. M. Brooks, of Columbus, Ind., were breeding for yellower bees than the average importations of Italians showed. In 1872 I procured some of Mr. King's stock, and continued to improve them till near the eighties, the apicultural world having lost sight of Mr. King meanwhile. At that time. by exchange, I procured queens of Mr. Brooks, and afterward, by purchase, got the last of his very best stock, he going out of the business. In the early eighties I sold one of the very best queens I could raise, along the yellow line, to L. L. Hearn, Oakvale, W. Va., and he and myself have been breeding and exchanging "blood" more or less ever since. So far as I am aware, all of the so-called five-banded bees, of Italian origin, which are in the world to-day, came directly or indirectly from either Mr. Hearn or myself. Mr. Swinson, of North Carolina, produced five-banded bees, but did so by a promiscuous crossing of Cyprian, Syrian, Italian, etc.; but in the King-Brooks-Hearn-Doolittle bees the Italian side has been strictly adhered to.

[Some five-banded bees are gentle, and in every respect as good as the ordinary Italians; while others display all the characteristics of the vicious Eastern bees. Either some breeders are careless, or ignorant of the real source of their "five-banders." The Doolittle and Hearn stocks are gentle, so far as I know. After having had quite an experience with Cyprians and Holy Land bees I think I see in *some* of the five-banders nearly all the bad qualities of their probable Eastern progenitors. It is those Eastern five-banders that are giving all the five-banders a bad reputation. See convention report elsewhere.—ED.]

BEGINNERS QUESTION

BY E.R. ROOT.

C. H., of Ia., inquires whether it will prevent swarming to introduce a young queen. *Ans.*—No; but colonies with young queens are not quite so liable to swarm as those with older ones. See answer to L. W.

P. W., of New York, asks if drones are ever raised in worker comb. *Ans.*—Yes, very frequently, particularly if there is no drone comb available. Drones from fertile workers or drone-laying queens, are raised, as a general thing, in worker-cells.

S. A. S., of N. H., is bothered with an excess of drones and drone comb, and asks for a remedy. *Ans.*—Use foundation in full sheets for the brood-nest, and cut out or dispose of all your drone comb. Very few drones will be reared from a normal queen if nothing but worker comb is given the bees.

D. S. J., of Colo., asks how many pounds of honey there is in one of beeswax. *Ans.*—It varies in different localities, and during different seasons of the year. If I remember correctly, half an ounce of comb, on the average, will hold a pound of honey. When this comb is made from foundation, the weight is increased according to the weight of the foundation used, because the bees, it seems, do not do very much thinning-down of the septum.

L. W., of Va., asks whether bees can be kept from swarming by cutting out queen-cells. *Ans.*—The cutting of queen-cells only discourages swarming. For normal colonies run for comb honey, I know of no method that will absolutely prevent swarming invariably. For extracted, the matter is far easier. Giving lots of room, both to the queen for brood-rearing, and to the bees for the storage of honey, will generally prevent swarming.

J. L., of Kan., would like to know whether the drones of a pure Italian queen are all yellow, or whether there is an occasional one with a black band. *Ans.*—Drones of a queen producing the ordinary normal three-banded Italians are rather dark-colored, with a very little yellow. There is usually not so much yellow showing on them as on the workers from the same queen. Drones from the so-called five-banded Italian stock, in some instances, are nearly all yellow.

J. D. B., of Mich., wants to know if he can use percolator feeders as late as December, as described by Dr. Miller and E. R. R., in a recent issue. *Ans.*—No. The mere fact that the syrup is made of sugar and water, half and half, makes the syrup so thin that the bees have got to thicken it, and this they can not do in cold weather. The syrup should be made in the old way, and fed thick, in the proportion of two of sugar to one of water. Better still, feed early—not later than the middle of October.

D. E., of Ariz., says he has a colony that reared a queen, and, after she had been laying in the hive nicely for seven days, the bees balled and killed her. He says that there was no robbing going on at this time, and that the bees were gathering alfalfa honey. He asks why the bees killed her. *Ans.*—There was probably something wrong with the queen. The bees can sometimes detect weaknesses or undesirable qualities in the queen sooner than the apiarist. If robbing had been going on we might surmise that a few of the outsiders were at the bottom of the trouble.

D. J. P., of New Mex., having purchased an Alley trap, says the drones, as soon as trapped, die very fast in it, and wishes to know if this is as it ought to be. *Ans.*—Yes. The drones will not live more than a few hours after being trapped, according to our experience. They will worry themselves trying to pass the metal, or, what is probably true, starve to death. The trap is generally used for trapping out undesirable drones; and if undesirable, their early demise is not much to be regretted. If desiring to capture select drones for an out-yard, they should be fed and taken care of at once.

F. C., of Mich., asks when is the best time to double up to get the most surplus. He does not wish to keep over 25 colonies, and these he would increase every summer to 50, uniting down again to 25 for the honey-flow. *Ans.*—I hardly know how to answer this question. Better keep down increase in the first place. If you *must* unite, I suppose you will have to do it just before the honey-flow; but, dear me! you will make them swarm fearfully if it is any thing of a honey-flow and you are running for comb honey. Of course, a good deal depends upon the size of your hive, and whether you will produce comb or extracted honey. The usual practice is, to let the bees alone, so far as uniting is concerned, until along toward fall—that is, providing the colonies are normal. If they are only half strength, of course it pays to unite in summer, providing you can do it without too much loss of bees, and this surely would be one trouble just before the honey-flow. Uniting can not usually be practiced satisfactorily except in the fall, when the days are too cool for the bees to fly much.

O. B. K., of Me., is greatly troubled with robbing. He has about 30 colonies, and has lost five already. What is he to do? *Ans.*—First get the A B C of Bee Culture, or any other textbook, and study up on the subject of robbing. But I may suggest right here that there are a few important things to be observed. See that the hive-covers fit tightly; that the hives are well made, and the joints tight-fitting—or, at least, bee-proof. After the honey season, if the colony is not of normal strength the entrance should be contracted. It should be contracted any way if robbing is progressing. If the bees get started badly on a colony, close the entrance nearly tight with grass. After a while, when robbing has quieted down, the grass will have wilted away and fallen out of the entrance. It is usually best not to close the entrance up entirely with blocks of wood. Even if you do not forget to take them away after robbing has quieted down, the bees are liable to smother. If you are careless about letting the bees help themselves to your honey-tank, you will have robbing all the season. Every thing containing honey should be made absolutely bee-proof. When you see bees buzzing around, and increasing in numbers around a can of honey or case of comb honey, do not be too sure that they can not get at it. If they continue to buzz around, you may rest assured that they are getting honey; and the only way to stop them is to find the place where they are getting in.

G. P. B., of Ark., asks the following questions: 1. Is it ever necessary to extract from the brood-chamber to give the queen room to lay? 2. Will bees winter on buckwheat honey entirely, and rear healthy brood in the spring? 3. Is sorghum syrup a good feed for bees? 4. Will a populous colony store honey without a queen or brood? *Ans.*—1. Not generally, but sometimes it may be advisable. A better way is, to take out the combs of honey entirely, store them away for winter feeding or some future extracting, and put empty combs or frames of foundation in their places. 2. Yes, generally. Buckwheat honey was once considered unwholesome for bees; and while it is generally admitted that it is not as good as white honey, or, better still, sugar syrup, as a general rule the bees will go through on it in good shape. 3. In the South, sorghum syrup may answer; but as a general thing bee-keepers in the North prefer something else for a winter feed. 4. Yes; but bees usually have more vim when they have a good thrifty queen with them; but in order to prevent swarming, some bee-keepers remove the queen entirely during the height of the honey-flow—first, to prevent swarming, and, secondarily, to prevent the raising of a lot of bees that, later on, will be consumers. These bee-keepers are reported to get pretty good crops of honey.

My honey report for 1894 is as follows: Spring count, 140, poor and good; increased to 210, and have harvested 14,500 lbs. of extracted honey—half light and half dark. I live 16 miles from W. L. Coggshall. S. J. SNYDER.

Venice Center, N. Y., Oct. 9.

Heads of Grain from Different Fields

WINTER CASE; THE ADVANTAGE OF PROTECTION.

Four colonies in Dovetail hives, without any protection, consumed last winter from 12 to 13 pounds of honey each. One colony, protected with winter case, consumed 5 lbs. only. All colonies were about equal. A swarm from a protected hive has now filled 4 supers (96 lbs.). None of the others have filled two supers. I should like to hear, through GLEANINGS, from those who have experimented on this line.

Rumford, Va. R. F. RITCHIE.

A BEE-KEEPER'S HEAVEN.

This is the bee-keeper's heaven. I will state that I am a member of an American colony located on Topolobampo Bay, which is 200 miles south of Arizona, and on the eastern shore of the Gulf of California. I was in the bee-business in Southwest Missouri and Arkansas for 15 years; but this country excels any thing I have ever seen or heard of. There are no bees kept by the natives, so we have the field all to ourselves. We shipped our Italian bees from the States; and such rapid increase I never heard of before. I commenced last spring with seven colonies, and up to date I have taken 450 lbs. of extracted and 100 lbs. of comb honey; and up to this writing I have an increase of 30 colonies—37 in all—and they are still swarming. I expect to obtain 400 or 500 lbs. yet this season.

As there is bloom here every day in the year, I can extract all the honey they have the latter part of November, and they will gather enough to take them through the winter, and be strong to gather the cactus and mesquite honey, which excels any I ever saw before. In fact, all the honey that I have so far is of a superior quality.

Extracted honey sells here readily for 25 cts. per lb., and comb 30 to 40.

I can not help feeling sorry for persons in your cold climate, where you have to winter your bees in cellars, and often feed a great deal of syrup to get them started up in the spring, while here all we have to do is to keep our bees well shaded, and nine months of the year they are producing a surplus, and the other three they are self-sustaining, without any of your chaff cushions or any thing else.

The bee-pasturage here is almost unlimited. There are seven species of cactus (all honey-producing), and some of them are in bloom nine months of the year. One variety, designated *acho*, which grows to be quite a large tree, and the mesquite-trees, furnish more honey than any other two varieties. There is such a constant flow of honey that we are not troubled with robbers; in fact, all the extracting I have done so far has been in an open shed within two rods of my bees, and I was not interfered with at all. W. F. BRAGG.

Topolobampo, Mex., Sept. 16.

SWARMING A HABIT; BREEDING OUT THE MANIA.

Perhaps the facts I wish to relate in this communication will be interesting to your readers. I am a strong believer that almost any natural trait, or even physical structure in the animal or insect world can be changed after a few generations. That is, cows may be dehorned until their calves will all come hornless; dogs "detailed" until puppies all come tailless; bees prevented from swarming until they cease swarming entirely, etc. I have a practical illustration in this line this season in my bees. I have been in the habit for the past eight or ten years, with the few colonies I keep, of preventing spring swarming; and in August, after the spring flow of honey, to "divide up" or artificially swarm them. My bees have almost ceased their attempts to swarm in spring. This year only about two attempts were made in 30 colonies. The honey season being a total failure, I concluded not to increase this August; and being busy with my farm work, I paid no attention to my bees, supposing they were all right, as I had built them up very strong. I could hear of swarms now and then since August 1st, hanging out on trees near my apiary, but thought little of it, as I would glance through my colonies every day or two, and find all stands occupied. Finally last week a fisherman came where I was at work and reported two swarms on the creek-bank, hanging on bushes. I went as promptly as possible, expecting to find a "poverty" swarm or two, and, hastily looking through the apiary, I found bees in every hive. I was completely puzzled. One swarm had flown to parts unknown before I arrived. I hived the other, and it is doing well, apparently. I see now clearly I have lost many swarms, and they are still swarming, or trying to. How else can this late swarming be accounted for, except as above stated? H. A. HALBERT.

Coleman, Tex., Aug. 26.

[We do not know about dehorning cows and detailing dogs, and what the probable consequence would be; but we have faith in the possibility of breeding out the swarming mania to a very great extent. James Heddon and others are sanguine of good results in this direction, and, indeed, something has already been accomplished.—ED.]

WILLIE ATCHLEY'S CELL-CUP PLAN A SUCCESS AGAIN.

With Willie Atchley's cell-cup plan I have had some success. When I was nearly through rearing what queens I needed this summer, I concluded to give Willie's plan a trial. Like Mr. F. Low (p. 731) I made a stick by Willie's directions, except that the worker-cell was a little larger. I gave to a colony which had a laying queen, six cocoons (in the proper part of the hive, of course), and four of them were accepted and finished. Perhaps all of them would have been accepted had I cut out a piece of comb, *a la* Willie Atchley (1893, p. 600); but hating to mutilate a fine brood-comb I pared down a square inch or over of cells on the comb, and, when I pulled the cocoons out with those tweezers I bought of you, the rims were too high. So I had afterward to cut and fix the single cocoons as well as I could; but the result was not very satisfactory, the rims being more or less uneven; and some of them, no doubt, too high. Had I practiced this cutting a little before, I should have done better, of course; and Mrs. Atchley, indeed, writes to me that it is not necessary to cut out pieces of comb. Mr. Low says that, in his opinion, the shape and size of the cell-cup stick is quite important. Well, after I had made the above trial I sent Willie what I thought it was worth, and in return he forwarded me a stick of his own make. So for next season's trial I am in possession of *the* stick.

Willie, in GLEANINGS of 1893, as well as Mrs. Atchley in an article in the *American Bee Journal*, says that, on an average, two-thirds of their cells are accepted. In a letter to Mrs. Atchley I remarked that Mr. Doolittle's averages were higher, and that perhaps Willie's way of leaving a colony queenless and broodless only "till the bees mourn," instead of, like Mr. Doolittle, having them queenless for three full days (72 hours), had something to do with it. In her answer, Mrs. Atchley says that it is better, indeed, to wait three days. I see now that Willie, on page 730 of GLEANINGS, recommends having the colony queenless and broodless for 48 hours—a day, or a day and a half longer than he formerly advised, but a day less than Mr. Doolittle, Mrs. Atchley, and others think to be best. CHARLES NORMAN.

St. Petersburg, Fla., Sept. 24.

SOMETHING OF INTEREST TO HEALTH-SEEKERS; FLORIDA'S HONEY RESOURCES.

In GLEANINGS for June 15, 1893, in the department of Wants, a subscriber from Gehm, Mo., wishes information as to the whereabouts of a climate with effects beneficial to throat and lung ailments; also to obtain employment in said climate. I will answer all inquiries with the greatest of pleasure. Wife, daughter, and I came here ten years ago on account of our health. My wife and daughter have not seen a sick day, and we have had no reason to call a doctor.

During the four years when the army officers watched the thermometer on the east coast of Florida, the highest point reached was 95, the lowest 35. The weather here in winter is delightful—about like our Indian summers in the North. We tried to keep a few bees when we lived in Massachusetts; but what were not killed outright by the cold winters came out looking as though they had been soaked in a swill-barrel all winter. When we started for Florida we had just one colony left. We brought it with us. Last spring we had 95, spring count. We have taken out this season 31,500 lbs. of very fine honey, and increased to 150 colonies. The bees are flying almost every day in the year. E. A. MARSH.

Oak Hill, Fla., Sept. 35.

PROF. COOK AND THE FRUIT-MEN.

Please find inclosed a few clippings from the Los Angeles *Times*. It is very interesting to know with what interest Prof. Cook is coping with apicultural work; yet the reporter says this paper aroused a deep interest, and a general discussion followed. While all acknowledged bees an important factor in cross-pollenization, an argument was raised against them, as they are known to be destructive to ripe fruit, notably the pear, apricot, and grapes, frequently destroying whole crops. The assertion is emphatically a mistake—yes, it's that old-time mistake which is still limping about like a crippled hopper. I am not entirely ignorant of the fact that a few would still have bee-men understand that bees do puncture grapes, cut holes through bee-hives, enlarge their entrances, and that they are capable of performing a great variety of other tricks. Bees do not destroy ripe fruit, unless some fruit-men are too careless or slothful in business; consequently the responsibility is thrown upon the shoulders of bee-keepers. Nor do the bees molest the fruit unless the fruit is over-ripe, cut into, and mutilated by our fruit-destroying birds, the linnets, wasps, yellow-jackets, etc. The linnets are certainly very annoying, and destructive to our apricots, figs, etc., and I have found them very destructive to our late crops of raisins. Why not petition the State to offer a bounty on the linnets, and give the boys something to do? ALBERT UNTERKIRCHER.

Redlands, Cal., May 15.

[The foregoing, as will be seen by the date, was overlooked. Having now come across it I take pleasure in presenting it, even at this late date, for the valuable facts it gives.—ED.]

BEES HAVE DONE FINELY.

Bees have done finely; 1400 lbs. from 26 colonies, spring count; 16 new swarms, good for winter. So far as heard from, it has been thus all over Delaware Co. Some hives have 80 lbs.

Groton, N. Y., Oct. 3. E. M. KELLOGG.

You say in the A B C book you would be glad to tell where bees get propolis. They get it here from the sweet-gum tree, as a few minutes' chewing will prove. J. W. LANIER.

Grenada, Miss., Sept. 14.

By ER Root
Editorial

THE indications are, that the bicycle will be cheaper another year. That will stimulate the out-apiary business.

WHEN J. T. C. came home, one of the first questions I asked him was what the convention did about the constitution. They revised it, striking out the objectionable features, and incorporating some new and valuable ones. It is a pleasure to know that there are no dead-letter features now in the constitution.

WE have been having remarkably pleasant weather in our locality for the past three or four weeks. Indeed, a pear-tree in our back yard does not know any better than to bud and bloom. Half the bees in our apiary are rearing brood, a good deal as in an open warm spring. If the cold season should come on gradually, this weather will be all right; otherwise it may prove to be a serious setback to the bees.

THE statement is going the rounds of the press, as though it were something positively wonderful, and never before heard of, to the effect that two queens were *actually* living together in harmony, in an observatory hive on exhibition at an apicultural show in Vienna, and that thousands of visitors can attest the proof of it. We don't doubt it at all. This same clipping desires bee-journals to take particular notice of it. Of course, our readers know that it is not an extraordinary thing to find two queens in a hive, both performing their regular duties.

OUR bees are all in winter quarters; and those in the home apiary, at least, have been fed six barrels of sugar. After our honey-flow, scarcely a drop of nectar came in. What was in the hives was consumed in brood-rearing; and the result was, we had to feed nearly all our colonies, many of them full feeds. All the syrup fed went either through percolator feeders or through a percolator uncapping-can, which was afterward fed in the usual way as thick syrup. This syrup in the combs is very nice. I have not the least doubt it will be entirely free from all traces of granulation.

I HAVE before me a beautiful photograph, 8x10, showing the members of the North American Convention, as they had assembled on the court-house steps in St. Joseph. In point of clearness, good focus, and good likenesses of the members themselves, I think no picture heretofore taken of the members of this society is quite the equal of it. Each member of the convention has a number-tag attached to the coat or dress, as the case may be. At the bottom of the picture is the name of each person, the number corresponding to the one in the picture. Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., has the pictures for sale, for 75 cts.

THE marriage of Edith Osband and John H. Larrabee took place on the 30th of last month at Lansing, where the groom has been living for some time. Mr. L. was formerly of Larrabee's Point, Vt., where he carried on bee-keeping very successfully. He was one of the leading bee-keepers of his State, and was several times chosen secretary for the Vermont Bee-keepers' Association. Although I had formed a high idea of him from his various bee-writings, it was not until I met him on my first bicycle-tour in 1890, at Lake George, that I understood what a good fellow he was. When the government apicultural station was instituted at Lansing, my opinion of the best and most available man for the place was asked. I recommended John H. Larrabee, and it was not long after that I learned he was awarded the appointment. That he filled the position well and faithfully, we all know; but it seems that a kind Providence had something more in store for him at Lansing—the wooing and winning of a "best girl in the world." I congratulate you, Bro. John, on your good fortune.

PREVENTION OF SWARMING, AND LARGE COLONIES.

I AM coming more and more to believe in the prevention of swarming by the use of large hives, or two eight-frame stories as one hive. At our out-yard those colonies whose queens were allowed their freedom in both upper and lower story stored considerably more honey *in proportion* than those confined to a single story. None of the former required feeding for winter, while all the rest did; and none of these big colonies swarmed or showed the least indication of it. They just kept right on piling in the honey during the unusually heavy flow from basswood. At present I incline toward two eight-frame bodies instead of one large brood-nest all in one large body, for this reasan--that there are some localities and some seasons when a single eight-frame hive-body would be quite large enough.

Now, I may be wrong; but from present indications the straws seem to be blowing this way; and I hope our readers will experiment along this line, and report results for next season. Or if you have had experience this season, speak out.

DO BURR-COMBS AFFECT THE AMOUNT OF HONEY?

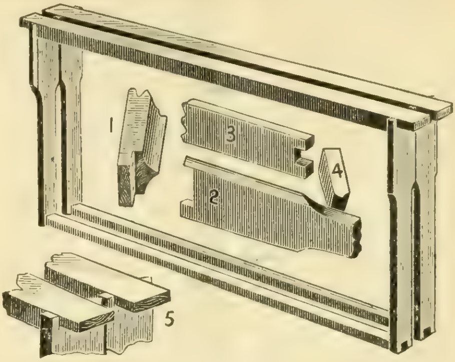
HUTCHINSON, in the *Review*, referring to the statement of Doolittle that burr-combs were worth 50 cts. per colony for honey, mentions an experiment that rather offsets it. He at one time ran out of slat honey-boards during a honey-flow; but nevertheless he put on the supers and let the bees build their burr-combs. As between those colonies with honey-boards and no burr-combs against the sections, and those without the boards and the burr-combs, he says he could see no difference in the amount of honey produced; but a big difference in the trouble in getting off the supers from the last named. He concludes that burr-combs can not be tolerated. When the thick top-bars were being gradually introduced into many apiaries several years ago, there was a splendid opportunity for comparison on this burr-comb question right in the same apiary. Reports were not wanting at the time, that, while there were practically no burr-combs built over the thick bars, their presence did not interfere with the amount of honey produced. Well, now let these same persons, or others who have had opportunity for comparison, report.

THIS NUMBER GOTTEN OUT UNDER DIFFICULTIES.

LA GRIPPE has been holding me down for a few days, and it "gripped" a hold of me in a way that it never did before; but between the doctor, good wife, and me, we have made it release its hold, and now I am rapidly building up again, and I hope I shall be none the worse for the "fun." Our little four-year-old boy had, almost simultaneously, an attack of congestion of the lungs; but, by the general noise and clatter and scattered playthings in an adjoining room, it is evident that he now is quite himself again. What *would* we do without these wives and mothers sometimes? Well, much of the matter for this number has been prepared while on my back, or half reclining in an easy-chair, "over home." I am still making my headquarters at the aforesaid place, with GLEANINGS copy and general correspondence scattered around that easy-chair. By the aid of a telephone to the office, the occasional visit of one of the stenographers, and of some of our helpers, I get along very nicely. At the present rate I shall be in the office in a few days.

IMPROVEMENTS IN BEE-HIVE CONSTRUCTION FOR 1895.

ON another page, in the department of Trade Notes, will be found a valuable criticism from A. B. Anthony, on the subject of thick top-bars. Since writing the footnote, which was some time ago, as you will see by the date of the article, we (John and I) have concluded, from letters received from other sources, and careful inquiries that I have made at various apiaries I have visited, that ⅝ inch is thick enough for all practical purposes, and that top-bars of that thickness, $1\frac{1}{16}$ or 1⅛ inches wide, come so near barring out burr and brace combs that the occasional spurs built during an exceptional run of honey will cause no trouble; therefore for the year 1895 our thick top-bars will be ⅝ instead of ⅞, with the same guide-edge as we had on our frames of last season, herewith shown. The frames will be identically the same, with the exception that the ends of the top-bars will be notched, to afford more finger room, as on the ⅞-deep top-bars of this season.



THE FLAT COVER, AND ITS WARPING TENDENCIES.

When Mr. Calvert visited the Leahy Manufacturing Co., at Higginsvile, Mo., he was so favorably impressed with what is called the Higginsville hive-cover, that, on his arrival home, he proposed that we adopt it in preference to the flat. After he had explained its construction — that is, its latest form — I felt pleased with it, as I know every one else will be. It is too late to get out illustrations for this number; but it is made like the one illustrated and described on page 406 of last year's volume, with this difference, that the ends of the gable-boards are rabbeted to ⅜ inch and let into a corresponding groove of the cover-cleat. We have quite fully decided to make it the leader for another year; and I understand that the W. T. Falconer Mfg. Co. have decided upon the same course. So far as we and the latter company are concerned, it will be made under royalty. There is no patent on it; but the Leahy Mfg. Co. really deserve to be remunerated for bringing out something that is even better than the flat cover, and that is saying a great deal. In most northern localities, certainly in our own, there is but little trouble from this (the flat cover) warping and winding; but in hot climates, and in all of the South, it has been found that it will wind a little, and, in some cases, check. The Higginsville is made of two pieces of wood; and being a gable cover, flat on the under side, it will be far better; and, if I am correct, where it has been tested in the most severe climates it has stood the test well.

Of course, there are those who will prefer the flat cover; but I do not know of a single advantage it has over the Higginsville model. But all of our customers can have the option of the flat cover if they desire.

NOTES OF TRAVEL

BY A. I. ROOT.

ON THE WHEEL.

Tuesday, Oct. 9, finally came to hand; and after the hurry and planning for an absence of a month or more, I settled down on the seat in the car with a real relish for a little rest. The autumn tints on the foliage of the forests seemed especially soothing, as they reminded me of a holiday away back in boyhood, and I was now off for a holiday indeed—yes, a holiday of a whole month.

I enjoy traveling in almost any shape; and while one does not get the same kind of exhilaration on the cars as on the wheel, yet I always enjoy looking over our native land and catching even the passing glimpses of such scenes rushing past, the passing glimpses of "our homes," the homes of the great masses.

At Crestline, O., I saw a sign decorating the window of a saloon, that should make every man and woman in Ohio blush; yes, the whole United States ought to feel ashamed to think that such a thing should disgrace our land. Right close to the depot, where every passenger on the train has it in full view, we see in large, plain, glaring letters—"A Good Drink of Whiskey, only 5 cts." The man who is so low down as to have the above painted on his large glass windows has some sort of a feeble excuse that he does it to make money; but is there another in the whole wide country who has the hardihood to comment on such a thing? I am astonished that Crestline has not before this held an indignation meeting, and declared the thing should not be, exactly as if some one persisted in having the smallpox right in the center of the town.

I left the cars at East St. Louis, and took my wheel, with my baggage all strapped on it, and, after quite a little ride in the cool of the morning, came to the great bridge across the Mississippi. Foot passengers go back and forth free; but you have to pay 15 cts. for taking a wheel across, even if you walk by its side. I presume this is because they have decided a wheel to be a "vehicle." It is true, the rubber tires do not "wear out" a bridge to any very great extent; but you see somebody must help pay for it, and perhaps owners of wheels can do it as well as anybody.

One reason for riding over on the wheel was, that I wanted to stop and look the bridge over to my full satisfaction. It is a wonderful piece of work, and is a credit to the engineering skill of *any* age. When I got my first glimpse of the new Union Depot of St. Louis, I was *more* astonished than at the bridge. It covers four city blocks, if I am correct, and cost $6,500.000. Don't be startled, and don't think the printer has made a mistake in the figures. I really didn't know there was any thing like it on the face of the earth; but there it is, and it is really a great blessing to the throngs of humanity that are constantly going in and out. Not only is every thing clean, neat, and tidy, but the architectural beauty is just wonderful; in fact, I am told that it is the finest and most perfect railroad depot on the face of the earth. Courteous officials are everywhere, and a traveler can hardly go wrong or miss his train, even if he were ever so stupid. Do you say, "Oh! this is all very fine for those who have plenty of money, etc.?" Not so. The regular price of dinner in this great fine dining-room is only 25 cents, and a very plain placard so announces it to everybody. I felt like saying, and say now, "Thank God for the example they are setting our people." In all my travels during the past weeks, I have only once paid *more* than 50 cents for my dinner. This once was at a dining-station at Bellefontaine, Ohio. There the price was 75 cents, and they piled around one's plate a great lot of expensive dishes—more than *any* one *ought* to eat. A runner told me it really seemed wicked, and made him feel guilty, to see the food wasted that was paid for every day, and couldn't be made any use of. Enough is wasted right along to feed almost all the hungry—at least all the *deserving* hungry. When I first reached the town of Lebanon, where I am now staying, I got an excellent supper at a hotel, and the price was only *20 cents*. The proprietor said he wanted to make his price correspond with the low prices of corn, wheat, etc. The farmers' institute is now in session, and at the above price the farmer who attends needn't feel guilty if he goes and buys his dinner instead of fussing to take it with him.

Just before night, John and I stopped off at Pleasant Hill, Mo., where we found George M. Kellogg awaiting us. Friend K. has *25* large greenhouses devoted entirely to cut flowers, and he markets them in almost every large city in Missouri. His immense plant is the growth of an enthusiasm of only a few years past, in this direction. He has 60,000 feet of glass, and perhaps the largest plant of the kind west of the Mississippi. Some of our readers may remember him as a writer for the bee-journals in former times, and, in fact, he keeps some bees at present; but, of course, they can not receive much attention with this other great enterprise on his hands. At least a dozen large houses are devoted to roses and nothing else. I want to call attention to a fact of much importance to greenhouse men and gardeners. Friend K. supports all his beds and all his glass structures on stakes and posts made of the osage-orange hedge-plants. It never rots, even when driven into damp warm earth; and, unlike the iron pipes I have advised, you can hew, saw, or drive nails into it. Abundance of the material can be taken from overgrown hedges scattered (ofttimes to our sorrow) all over our land. Another thing, a hen and chickens are a perfect remedy for snails in a greenhouse or anywhere else among your plants.

THE NORTH AMERICAN BEE-KEEPERS' CONVENTION DURING THE FIRST DAY.

So far (Oct. 11) we have had a very pleasant time. Pres. Abbott, with Benton, Dr. Miller, "W. Z. H.," York, Holtermann, Christopher Grimm, Dadant, and others are making things lively. T. B. Terry got in late in the evening, but Pres. Abbott found time enough for him to give the bee-keepers a brief résumé of one of his clover talks. Dr. Miller gave us a song and one of his "select" readings; a gentleman and lady of the city each also favored us with a song, closing with a couple of fine pieces by a celebrated violinist. The Missouri bee-keepers are not out as we should like to see them, but more may come to-day. Kansas and Nebraska are pretty well represented. Quite a few old friends who have taken GLEANINGS almost ever since it was printed by the windmill are on hand with warm greetings. Six different bee-journals are represented by their respective editors. The city of St. Joseph has given us, free of charge, the use of the finest hall, beautifully seated, that was ever tendered the N. A. B. K. A. since its inauguration. Every one of the audience is furnished a richly cushioned arm-chair. Porters in constant attendance are free. The hall comes from the Commercial Club, of the city.

A NEW USE FOR TAXIDERMY.

It is a little funny that so many bee-keepers are devotees of natural science, and especially in the line of natural history. Boardman and France have each of them collections of stuffed birds and animals that might honor a museum; but a little incident aroused me to the *utility* of this science while visiting the first-mentioned gentleman. We had just returned from the fishing-trip I mentioned in my last; and as his nice young team brought the easy carriage round up to the porch, I noticed a chicken-hawk standing out in the yard, where his poultry were standing off at a safe distance and scolding and expressing their indignation at having their born enemy so near.

"Why, friend B., what is that hawk doing there in your dooryard?"

"That hawk? Why, he is keeping the chickens off the porch and the stone walks. He is the cheapest help I can possibly get to do the work."

Then he had a good laugh, to see that I at first took his handiwork to be a real live hawk. I took in at a glance the possibilities of his invention, and went on.

"Why, look here! that bird would keep chickens and all feathered thieves from your cherries, strawberries, or any thing else, and would save his value over and over. Have you not tried him for this purpose?"

"Why, to be sure I have; and that is one of the things I kept forgetting to tell you about. He has been out in the sun and rain now for two years past; during the warm weather, and during strawberry time, it would have delighted you to see the big 'indignation meeting' held day after day by all the birds in the neighborhood. They never get a berry of mine, from the fact that they spend all their time quarreling with him. He, however, takes it very philosophically, never fighting back, even though they go so far sometimes as to pluck the feathers from his back."

I wondered that the chickens around the house did not in time discover the fraud; but, even if they did, they seemed to think best to give him a wide berth.

Now, then, friends, here is a wonderful discovery. If you don't realize it, just purchase for your wife a stuffed hawk, set it on a cast-iron base, so he won't blow over, and show her that she can keep chickens off the walks and porches, without the trouble of fencing them off and keeping gates shut. Now, this doesn't end here. The taxidermist can furnish the natural enemy of any of the animal kingdom; and who knows but that a great enterprise may be builded up in the "scarecrow" business? When you shoot hawks and owls, don't throw them away, but turn them over to some boy who has a fondness for the business. With the aid of the proper books, one can soon learn how to put them up so they will be durable. Prepared skins of hawks may also be purchased at low prices in many of our large cities.

LIFE AMONG THE POOR IN NEW YORK.

A WARNING TO COUNTRY BOYS.

By Rev. W. T. Elsing.

[The first two paragraphs of the following will explain why this very interesting article on this subject appears in our columns. The flocking of the masses from the country to the great cities and large centers is getting to be a serious matter indeed, and I trust this article will be read carefully, by the boys at least. The colony referred to was sent along last summer, and it is to be hoped that it will help to carry light and life to some portions of "Darkest New York."—ED.]

It may interest the readers of GLEANINGS to learn how a city missionary comes to write an article for a bee-journal. Ever since I have been a missionary I have been trying to show the people among whom I live something besides brick walls, stone sidewalks, and dirty streets. I have, once a month, given a lecture or sermon about some object in nature. Among other things I have preached about ants and bees. My readings about bees made me curious to see the inside of a hive. At the World's Fair I visited the corner in the gallery of Agricultural Hall, where the bee-supplies were located. I made the acquaintance of some farmers; and when I was tired out sight-seeing I enjoyed talking with the bee-keepers. When these good men learned that I was a minister in the most crowded part of New York, and interested in bees, they were always ready to give me points. Every one with whom I talked said, "If you want to know about bees and bee-keepers you must get Root's A B C book and GLEANINGS IN BEE CULTURE." So many people spoke about "Bro. Root" that I became desirous to meet him, and called several times, but never had the pleasure of seeing him. I met Dr. Mason, and he informed me that Bro. Root was always glad to send GLEANINGS to ministers and missionaries.

On returning to New York I received the magazine, and my interest in bees increased. I wanted a colony of real live bees, so that I might see them at work, and take some of them to my church when I gave the next lecture; but when I thought of the suffering around me, and listened daily to appeals for aid, when I heard women and children crying for bread, I did not feel that it was right to spend money for any thing which I did not absolutely need. I wanted the bees, but did not feel like spending the money. I wrote to Bro. Root about my difficulty, and proposed that we "swap" a short article on tenement-house life for a colony of bees.

The terms were agreeable, and this is how it comes about that a city missionary writes for a bee-journal. I propose to give the readers of GLEANINGS some account of life among the lowly in a great city.

The great tenement houses remind me of bee-hives. Probably most of the readers of GLEANINGS have supposed that London is the most crowded city in the world, and they will be astonished to learn that in some parts of New York the population is more than twice as dense as in London. In the most crowded part of London there are 170,000 people to the square mile; but in the most crowded part of New York there are 345,000 to the square mile. The graves of the silent dead in the cemetery are not more closely crowded together than the active moving bodies of the living. When a fire breaks out, or some excitement occurs in lower New York, the people pour out of these human hives in vast multitudes, and blacken the streets as far as the eye can see. It seems as if every brick in the wall and every cobblestone in the pavement had suddenly become a living, moving, restless human being. If all the people in the tenement-house districts were suddenly to become possessed with the desire to swing their arms in the air they would not have elbow room, but would strike each other in the face.

I have recently gone through one of these immense hives, 200 by 60 feet, and found, by actual count, two hundred families; or, counting five to a family, 1000 persons living in one house.

For the past ten years I have daily gone in and out of these homes. I have seen enough sin and misery to make my heart sick. I have also found in these homes a good deal of sunshine. On the slopes of the high mountains in Switzerland I have found beautiful flowers growing right on the edge of perpetual snow-fields, and in these great tenement houses I have found some of the rarest and choicest virtues.

The ordinary tenement house contains five stories. Four families live on a floor. Each occupant usually has a kitchen and two dark bedrooms. For the three rooms they pay from $10 to $12 per month. So far as the exterior is concerned, the tenements are often as much alike as the bee-hives in a large apiary; but when you leave the hall and enter the apartments the difference is very great. In one room you may find dirt and dinginess, and bad odors enough to sicken you; while right across the hall you may find a little home which is a model of neatness. A great many of these people live in tenement houses from necessity rather than choice.

New York is hemmed in on all sides by water. Manhattan Island is long and narrow. There is no room to spread as in Philadelphia and Chicago. The only direction in which men can build is heavenward, and each year the houses are built higher. If there were no law to prevent it, the tenement houses would be fifteen or twenty stories high, instead of five and a basement. A vast number of workingmen prefer to travel an hour every morning and evening on the ferry-boats, street-cars, and elevated trains, to living in this crowded condition; but where there are two or three children working for small wages, they can not afford the necessary traveling expenses.

It is literally true, that there are thousands of poor children in lower New York who have never seen a tree or a blade of green grass. The only possible way to get a sight of nature is by going to the parks.

When poor widow women are sewing shirts and overalls for 29 cents per dozen, and are obliged to work ten or twelve hours for 25 cents, it is impossible to pay street-car fare so as to reach the parks. Through the *Tribune* Fresh-air Fund several thousand children are each year sent into the country; but a far larger number do not leave the dark courts and alleys during the entire year. The average earnings of unskilled laborers are from ten to twelve dollars per week. This may seem like big wages to men in the country; but at least one-fourth of a workingman's wages goes for rent. Every thing the family eats must be bought—no one has a little garden; and if occasionally some lover of poultry tries to keep a few chickens in the back yard, he will first have to kill chanticleer; and although no neighbors are awakenend by the prophet of the morning, if the Board of Health should hear that a quiet flock of biddies live in some secluded back yard, a veto is soon put on such proceedings. There are so many expenses that it is utterly impossible for an unskilled laborer to get ahead in a large city. I know several good, faithful, sober, hard-working men who are just as poor as they were ten years ago. When the ordinary income is cut off, through sickness or want of work, hunger and an urgent landlord stare the workingman in the face.

The only hope for poor but thrifty working people lies in their children. The boys, who are educated in the public schools, and who often get places in stores and offices, sometimes have fine opportunities to rise in the world. The girls are at a decided disadvantage. Shop life is the curse of many a poor young woman. Our city girls would rather work in a box or tobacco factory, or even in a rag-shop, than take places as domestic servants in good families. The balls and theaters are generally running full blast, and there the shop-girl often meets her company. I have seen girls leave the shop the day before their marriage, bright, pretty, and full of life. They took up the care of a house without knowing even the first principles of housekeeping, and in three or four years they degenerated into slatternly, slovenly, middle-aged women.

The efforts now being made to give industrial training, and to teach the art of housekeeping, in the public schools, will confer vast benefits on the homes of the future.

The evils of life in a great city are so numerous that a host of organizations are constantly at work among the densely populated tenement houses to elevate, civilize, and Christianize, or humanity would fester and rot in the densely crowded parts of the town. The saloons, the gambling-houses, the policy-shops, the dens of vice, the low theater and dance-hall, are dragging thousands down to destruction every year. The churches, Sunday-schools, city missions, children's aid societies, girls' friendly societies, young men's Christian associations, college settlements, free reading-rooms and libraries, are saving thousands. The work of destruction and salvation are prosecuted with equal intensity. In the city you have the worst and the best men. The most hellish and most heavenly work constantly, going side by side.

One remarkable peculiarity about life in New York is the way in which various nationalities flock together. We have Italian, Chinese, Syrian, French, Jewish, Irish, and Bohemian quarters. In the neighborhood of my church we have a vast multitude of Jews. The Jewish invasion is quite recent. Ten years ago we saw a Jewish sign or Jewish face occcasionally; but now we see almost nothing but Jews. I opened a service for Jews in my church four years ago, and every Saturday afternoon we have from four to five hundred men present. We usually have to close the doors, because we can not accommodate all who come.

The distress in New York at present is frightful. In ordinary times the poor help each other, and in ten years a case of starvation has not come under my observation. This fall, however, it is different. A few days ago one of our missionaries found a poor Italian family in an awful condition. The children were lying on the floor, moaning for food. The poor father, in despair, was crying. He was unable to speak English. He had sought in vain for work, and was longing for death to end his misery. Our beef tea and provisions worked wonders for three of the children; but one poor little child was so exhausted that it could take no nourishment, and died two days after the food came. I sent an Italian doctor to the home, and he said the child had died of starvation.

A short time ago I called at the home of a widow. I was afraid she was suffering, and said, "I do not want to be curious, but I should like to know what you are going to have for dinner. Will you let me see what you are cooking?"

She took the lid from a small dish which contained *one* solitary pototo! She said, "I was afraid I might have to go hungry to-day; but God is good to me, and my neighbor has just brought me this potato."

To relieve the present distress, a few workers in the tenement-house district organized a work relief society. Our object is, to give relief by work. We commenced in November, setting fourteen men at work on the streets. At present we have eight hundred men cleaning the streets. We have also opened five tailoring shops, and recently started a whitewash brigade. At present two hundred men are employed at whitewashing dark alley cellars and dirty courts. Thirteen hundred heads of families are in this way receiving $1.00 per day. This is infinitely better than giving them charity.

I believe that, if the young men who are earning a comfortable living on the farm understood even a small part of the hardships and misery the poor have to put up with in the cities, they would think twice before they exchanged a rural for an urban life. My great desire is, to open a farm-school where city boys, too old to learn a trade, might be taught the first principles of practical farming, and thus get them out of the overcrowded city into the better and more independent life of the country. I wish that all the young men in the country, who are eagerly planning to leave the farm, could go up and down the Bowery with me and see the eight thousand men who sleep in the cheap lodging-houses every night. They find it absolutely impossible to secure work at present. Hundreds have not even fifteen or twenty cents to pay for a night's lodging. I called on the superintendent of the Bowery branch of the Young Men's Christian Association a few days ago. to consult with him about opening my church at night, as a shelter for homeless men. He immediately asked me about our bathing facilities. I informed him we had no baths connected with the church. He said, "Unless you can fumigate the men's clothing every night, and give every man a bath, your church will soon be alive with vermin." That plainly shows the fearful condition which many of these poor fellows are in. A few weeks ago we found a young German nobleman, who had diplomas from three universities, in one of these Bowery lodging-houses.

My advice to all young men is, let well enough alone. If you have a rich uncle or good friend in the city who will give you a chance in his establishment, well and good; if not, stick to your farm and take care of your bees.

GERMAN OR BELGIAN HARES.

NOW READY FOR BREEDERS.

EASILY RAISED IN HUTCHES.

SPLENDID MEAT.

Write me for prices, how to breed, and what to feed.

G. J. FLANSBURGH,
So. Bethlehem, - N. Y.

☞In responding to this advertisement mention GLEANINGS.

CHAS. ISRAEL & BROS., 110 Hudson St., N. Y.

WHOLESALE DEALERS & COMMISSION MERCHANTS. Established 1875.

HONEY —AND— BEESWAX.

LIBERAL ADVANCES MADE ON CONSIGNMENTS.

BUFFALO, N. Y. Unsurpassed Honey Market
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

Attention, Bee-keepers!

Remember Jennie Atchley will mail you untested queens any day in the year for $1.00. She is now preparing to fill your orders for queens and bees in 1895.

January to June prices: Untested, $1.00, 6 for $5.00, $9.00 per doz. Tested, 3-banded, $1.50; 5-banded, $2.50. Tested Carniolans, $2.50. I will rear the leather-colored Ital's, or 3-banded; silver-gray Carniolans, and 5-banded, in separate yards at safe distance. Bees by the pound, $1.00. Nuclei, per frame, $1.00. This is one of my specialties.

Write me for prices on large lots and to the trade. Catalog ready Jan. 1.

I have been at this business long enough to know how to ship, and please customers.

All Bee Supplies. Dovetailed Hives, Root's Goods, and Dadant's Foundation. Figure out what you want, and write for estimate.

Jennie Atchley,
Bee Co. Beeville, Tex.

500 YOUNG FERRETS

Now ready to ship at only $3.00 a pair. Price list of Bees and Ferrets free. **N. A. Knapp,**
Rochester, Lorain Co., O.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange supplies and other goods for honey. O. H. HYATT, Shenandoah, Iowa. 20tf

WANTED.—To exchange a Noxal 200-egg incubator, used 3 settings, at $15, comb foundation at market price, and extracted honey at 8c, for honey boards, supers, and brood-frames, cut to order.
R. C. AIKIN, Loveland, Col.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange good country store (stocked) and P.O., with 8 first-class living-rooms annexed, 50 colonies bees, good honey-house and barn, for village property of some kind.
A. CARTER, Walton, Mich.

WANTED.—Choice evaporated or dried peaches and apricots. Mail small sample if you can furnish any cheap.
N. E. DOANE, Breckenridge, Gratiot Co., Mich.

WHAT have you got to exchange for new extractor, never used? ED. WEIDNER, Earlville, Ill.

WANTED.—To exchange 18 volumes of Gleanings in Bee Culture, from 1875 to 1895; 6 of the vols. lacking a few Nos.; 7 vols. of Bee-keepers' Review, 1888 to 1895; 2 vols. of Bee-keepers' Exchange, lacking 2 Nos.; 2 vols., V., VI., Bee-keepers' Magazine; 4 vols., from 1883 to 1887, of the Illustrierte Bienenzeitung, for honey.
HENRY OTTO, Independence, Iowa.

CONVENTION NOTICES.

The Western Washington Bee-keepers' Association will hold its next session in the Horticultural Rooms, City Hall, Tacoma, Wash., Nov. 12. G. D. LITTOOY, Sec., Tacoma,

The Southwestern Wisconsin Bee-keepers' Association will meet in the Opera House, Montfort, Wis., Nov. 14, 15, 1894.
A. A. ARMS, Sec.

The next regular meeting of the Central California Bee-keepers' Association will be on the first Wednesday in December, at Hanford, Cal. J. F. FLORY, Sec., Lemoore, Cal.

Let everybody come to the Midwinter bee-meeting, Beeville, Tex., Dec. 27 and 28. Half fare on all railroads. No hotel bills. The meeting will be at Mrs. Jennie Atchley's apiary, two miles north of Beeville. JENNIE ATCHLEY.

The next annual convention of the Vermont Bee keepers' Association will be held in Middlebury, Vt., Jan. 30, 31, 1895. Programs will be prepared and mailed later. Let every bee-keeper, whether Vermonter or not, begin now to lay his plans to attend this meeting. H. W. SCOTT, Sec., Barre, Vt.

The Indiana State Bee-keepers' Association will hold its 15th annual meeting at the Statehouse, Indianapolis, Jan. 9th, 1895. There will be three sessions. Several other associations will convene here at the same time, thus securing 1⅓ fare for the round trip; but a certificate must be asked for when buying your ticket. Programs will be ready in December.
WALTER S. POUDER, Pres., Indianapolis.

The Illinois State Bee-keepers' Association will hold its regular annual meeting at the Statehouse, Springfield, Nov. 13 and 14, 1894. This change in the time has been made in order to secure reduced railroad rates of 1⅓ fare for the round trip. The National and State Granges both meet at the same time and place, and arrangements are made for the same person to sign all the certificates, which must be asked for when the ticket is purchased. Hotel rates will also be secured.
JAS. A. STONE, Sec., Bradfordton, Ill.

KIND WORDS FROM OUR CUSTOMERS.

The Burpee bush lima was far ahead of expectations. E. E. EDWARDS.
Alexandria, Ind., Sept. 12.

The goods I ordered from you have been duly received, and I am pleased to state that I am much satisfied with them, and will always give you my patronage. A. H. GROVES.
Bash, Jamaica, W. I., Aug. 20.

I received the labels all right, and I must say I was more than pleased with them. I like your style, taste, and design in putting them up. I would say to all who wish nice tasty labels, that they had better give Bro. Root a chance at them. I will guarantee they will be more than pleased with them. G. W. REAM.
Franklin, Tenn., Sept. 13.

ROOT'S GOODS.

I took a flying visit to M. H. Hunt's, July 31. I found Mr. H. a good genial fellow. He soon took his departure on business, leaving his guest in charge of Chester Thompson, who, by the way, is a kind fellow who likes to show up Root's goods, and talk on the subject of bees. Well, I saw every thing needed in an apiary. Those polished sections are beautiful; the Crane smoker is immense; Hoffman frames are equally handy. Chester has every thing nicely arranged—all handy to show. He says Root's goods are the best, and he ought to know, for he is threescore and ten—hale, sound, and hearty. But that is not all Chester can do. He raises bush lima beans. They look fine—as well as the rest of the garden. CHAS. BIERY.
Northville, Mich., Aug. 7.

AN EXCEEDINGLY KIND CRITICISM.

Mr. Root:—In GLEANINGS for Sept. 1, page 700, you class all persons who use tobacco as loafers. Now, Mr. Root, you say a great deal. Is not your mantle of charity a little one-sided? I know a great many good honest business men, and I think good Christians, who use the filthy weed—men who are openhearted in charities. I have been a reader of GLEANINGS for many years, and could not well get along without it; and I like to read your exhortations and sermons; and, in fact, I peruse the whole of it very carefully, and find many good things in it. But when you raise your ax to strike, you must keep very close to the line. Let the good Master be our judge, not feeble and selfish man. I will not give you my name at this time. But I will remind you of this when I see you again. May God speed you in the right line of duty.
A FRIEND.

[Dear unknown friend, the man who could not take such a very kind and friendly criticism as yours must be stubborn indeed; and before I go any further I wish to thank you for your very kindly warning. When I turn to page 700, however, all I can find is the following: "There were no nasty spittoons, and there were no loafers chewing and spitting, and puffing tobacco smoke in your face." I am sure this does not by any means say that *all* tobacco-users are loafers. In fact, I had no such thought in mind, for I know better; but I still think that smoking and chewing tobacco is the inevitable adjunct of a loafer, if not his marked peculiarity. Some of my very best friends are users of the weed, and I should be exceedingly sorry to hurt their feelings by any thing unfriendly or uncourteous. Nearly all of them admit, however, that tobacco-using is not a thing to be commended or encouraged. In fact, I never knew a good man who wanted his boy to use it. Many contracted the habit years ago, perhaps in youth, and find it just now very difficult and inconvenient to break off. What I had in mind was this: In traveling I go into many fine hotels. I admire the arrangements for the comfort of traveling people who are obliged to be away from home. Of course, the use of tobacco is not permitted in all the rooms of these fine hotels; but it seems to be permitted and encouraged in the hotel office. In fact, the fine hotel at Lakeside was, so far as I can remember, the only real nice hotel where there was not a case of cigars near by the desk. Since you remind me of it, I admit that the quotation I made above was a little severe and sweeping; for in our best hotels the real loafer is not, as a rule, tolerated. Those who smoke are often, as you say, exceedingly busy men, and very often men of great ability—not, however, *because* of tobacco, but *in spite* of its awful effects. I will try, dear brother, to be more careful, and to let God be our judge. Your closing kind words, coming as they do after your kind rebuke, fairly touch my heart.] A. I. R.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis.

BBB'S!

If you keep *BEES*, subscribe for the Progressive Bee-keeper, a journal devoted to Bees, Honey, and kindred industries. *50 cts. per year.* Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address
LEAHY MFG. CO., HIGGINSVILLE, MO.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. GREGORY BROS. & SON,
1-23o Ottumwa, Ia. South side.

Cash for Beeswax!

Will pay 22c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 30c per lb., or 32c for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*
A. I. ROOT, Medina, Ohio.

PATENTS

Careful attention given to the prosecution of business before the U. S. Patent Office. All business treated as *strictly confidential*. No charge made for services in prosecuting application, until the patent is allowed. Send for "INVENTOR'S GUIDE."

FRANKLIN H. HOUGH,
925 F STREET, WASHINGTON, D. C,

☞In responding to this advertisement mention GLEANINGS.

Beeswax Wanted.

Will pay 28c cash.

A full line of Supplies always on hand.

I. J. Stringham, 105 Park Place, N. Y.

MUTH'S HONEY EXTRACTOR.

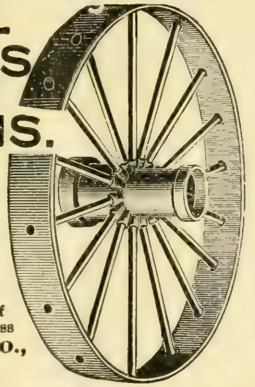
Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

METAL WHEELS for your WAGONS.



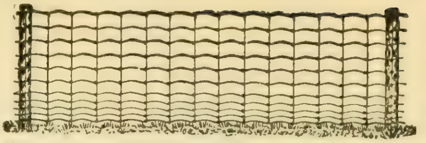
Any size you want, 20 to 56 in high. Tires 1 to 8 in wide—hubs to fit any axle. **Saves Cost** many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires. Catl'g free. Address

EMPIRE MFG. CO.,
Quincy, Ill.

For Sale, Berry Farm of 7 Acres. Good house and barn; orchard of 35 apple, 10 cherry, and other large fruit; 1 acre of blackberries, 3½ acres of raspberries, ⅛ acre strawberries. Rich second-bottom land, tile drained. Tools, household goods, and bee-fixtures; 1½ miles from village, with good churches, high school, etc.; 10 minutes' walk from Valley R. R. Station and district school.

Good home market; 12 miles from Cleveland city limits. Good honey location; fine well water. Price $1600, easy terms. Write for particulars.

L. B. BELL, Brecksville, Ohio.



How to make a Good Wire Fence.

Take equal parts of **STRENGTH** and **ELASTICITY,** don't think of omitting the latter as you might as well try to make good bread without leavening; a heavy, "soggy" product would be the result in both cases. Now, having your ingredients of the best quality, **mix thoroughly** so that they come in contact at every point. The good bread maker never tucks the yeast in one end of the loaf. Stretch on durable posts, as it will last a life time. You can buy it "ready made" of

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping-point in the Country.** Dealers in Honey and Beeswax. Catalog free.

WALTER S. POUDER,
162 Massachusetts Ave., Indianapolis, Ind.

Please mention this paper.

Attention, Bee-keepers!

Remember Jennie Atchley will mail you untested queens any day in the year for $1.00. She is now preparing to fill your orders for queens and bees in 1895.

January to June prices. Untested, $1.00, 6 for $5 00, $9 00 per doz. Tested, 3-banded, $1.50; 5-banded, $2 50. Tested Carniolans, $2.50. I will rear the leather-colored Ital's, or 3 banded; silver-gray Carniolans, and 5-banded, in separate yards at safe distance. Bees by the pound, $1.00. Nuclei, per frame, $1.00. This is one of my specialties.

Write me for prices on large lots and to the trade. Catalog ready Jan. 1.

I have been at this business long enough to know how to ship, and please customers.

All Bee Supplies. Dovetailed Hives, Root's Goods, and Dadant's Foundation. Figure out what you want, and write for estimate.

Jennie Atchley,
Bee Co. Beeville, Tex.

☞In responding to this advertisement mention GLEANINGS.

BBB'S!

If you keep *BEES*, subscribe for the **Progressive Bee-keeper,** a journal devoted to Bees, Honey, and kindred industries. *50 cts. per year.* Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address

LEAHY MFG. CO., HIGGINSVILLE, MO.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

FULL LINE OF

BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

SAN FRANCISCO.—*Honey.*—Honey is firmly held, and stocks are light. We quote extracted 6½@7½ for light amber and white, respectively. 1-lb frame comb honey, 9@11c according to quality. Beeswax in good demand at 24@25c.

SCHACHT, LEMCKE & STEINER,
Oct. 26. San Francisco, Cal.

ST. LOUIS.—*Honey.*—Demand for honey increasing. We quote choice white comb, 12½@13; amber, 11@12; choice white extracted in cans, 6½@7½; bbls., 5@5¾; amber, in cans, 5½@6; bbls., 4@4½. Prime yellow beeswax, 26@26½.

D. G. TUTT GROCER CO.,
Nov. 8. St. Louis, Mo.

ALBANY.—*Honey.*—Owing to the political excitement attending the recent election, business has been almost at a standstill, and honey moving very slowly; but now that the contest is ended we hope for a revival of trade. We have a good stock of buckwheat comb honey on hand, but not much white clover coming forward. Prices are not quite so firm, as the trade is now pretty well supplied. We quote white, 13@14; No. 2, 11@12; mixed and buckwheat, 9½@10; extracted dull at 6@7.

CHAS. MCCULLOCH & CO.,
Nov. 10. Albany, N. Y.

NEW YORK.—*Honey.*—The market for comb and extracted honey is good, and the supply equals the demand. Fancy clover and buckwheat are selling the best; off grades are not quite as salable; 2-lb. sections are very little called for. We quote to-day, as follows: Fancy clover, 1-lb. comb, 13@14; ditto, 2-lb. comb, 12½@13; white ditto, 1-lb. comb, 12@12½; ditto, 2-lb. comb, 12; fair, 1-lb. comb, 10@11; ditto, 2-lb. comb, 10@11; buckwheat, 1-lb. comb, 10@11; ditto, 2-lb. comb, 9@10; extracted, clover and basswood, 6@6½; buckwheat, 5@5½; southern, per gal., 50@60. Beeswax scarce, and in good demand at 29@30c.

CHAS. ISRAEL & BROS.,
Nov. 10. 110 Hudson St., New York, N. Y.

CHICAGO.—*Honey.*—Offerings are chiefly confined to the better grade, and a steady trade is observed on the market. Fancy white comb sells at 15c.; dark, 10@13; extracted selling at 6@7, according to quality, color, and flavor. Beeswax scarce at 27@28 for yellow; sells on arrival.

R. A. BURNETT & CO.,
Nov. 7. 163 So. Water St., Chicago, Ill.

BUFFALO.—*Honey.*—No material change in honey market. We quote fancy, 14@15; choice 1-lb. sections, 12@13; buckwheat and other grades, 9@11. Stock in market is very light, and no doubt very excellent trade will continue through the winter season, from present indications.

BATTERSON & CO.,
Oct. 8. Buffalo, N. Y.

DETROIT.—*Honey.*—Comb honey is more plentiful on the market than it has been for years, still the price remains unchanged. Best white comb, 14@15; other grades, 12@13; extracted, 6@7 with fair demand. Beeswax, 24@25.

M. H. HUNT.
Nov. 7. Bell Branch, Mich.

MILWAUKEE.—*Honey.*—The demand for honey has been very good considering the general condition of trade. The supply of choice section honey is not large, and for the past few days the demand has dropped off some; yet we are looking for a fair trade and at fair values. We now quote choice white 1-lb. sections, 16@18; any thing not choice varies from 12½@15; extracted, best quality, in bbls. or kegs, 6½@7; ditto, in pails, 7½@8; dark in bbls. or kegs, 5@6. Beeswax wanted; will pay for choice pure 25c cash.

A. V. BISHOP & CO.,
Nov. 3. Milwaukee, Wis.

CLEVELAND.—*Honey.*—Strictly fancy white comb honey put up in cases of 1-lb. sections is selling from 14 to 16c. Receipts are heavier than last week and the demand good. There is little call for extracted at 6c. Beeswax moving at 25@27c.

WILLIAMS BROS.,
Nov. 7. 80 & 82 Broadway, Cleveland, O.

KANSAS CITY.—*Honey.*—The receipts of honey large, market well supplied. Fancy white, 1-lb. combs, 15 cts.; amber, 12@13. Receipts of extracted light; white, 7 cts.; amber, 5½@6 cts.; Southern honey, 4½@5. Beeswax, 22 cts.

HAMBLIN & BEARSS,
Nov. 8. Kansas City, Mo.

CINCINNATI.—*Honey.*—Demand is fair for extracted honey at 4@7c. There is a good demand for comb honey at 14@16c a lb. for choice white. Demand for beeswax is good at 22@27 for good to choice yellow.

CHAS. F. MUTH & SON,
Nov. 8. Cincinnati, O.

BOSTON.—*Honey.*—We quote our market on best 1-lb. comb honey at 14c, and on extracted, 5@6; supply is ample, and demand continues light.

E. E. BLAKE & CO.,
Oct. 12. Boston, Mass.

FOR SALE.—Eight tons fine extracted honey, put up in square 60-lb. cans, two in case, at 5½ and 6 cts. Five or more cases, ½c less. F. O. B. here.

J. B. CASE, Port Orange, Fla.

FOR SALE.—1800 lbs. honey in 60-lb. square cans, price 7 and 8 c., f. o. b. cars here. Sample by mail.

R. H. BAILEY, Ausable Forks, N. Y. Box 81.

Only a part of that car of honey left, but we still have plenty to fill orders at $7.80 per box.

AIKIN BROS., Loveland, Col.

Having secured a fine quantity of buckwheat extracted honey I now offer it in lots to suit purchaser, 210-lb. kegs at 5½c, f. o. b.; also 2000 lbs. of basswood and clover.

W. LAMAR COGGSHALL.
eitf West Groton, Tompkins Co., N. Y.

WANTED.—To buy quantity lots of white comb and dark extracted honey.

B. WALKER, Evart, Mich.

Comb and extracted honey wanted, in large or small lots. Consignments solicited. Reference, A. I. Root, or Union National Bank, Denver.

eitf R. K. & J. C. FRISBEE, Denver, Col.

FOR SALE.—7000 lbs. of fine, ripe, extracted basswood honey, highest offer takes it. Also Italian Bees and Fox-hound pups.

eift ELIAS FOX, Hillsboro, Wis.

FOR SALE.—Two tons of white-clover honey (just bought). Will also buy for a small commission (sample crates forwarded). If you want comb honey nicely crated write me.

SMITH'S APIARY & STOCK FARM, Padelfords, N. Y.

Buckwheat extracted honey at 5½c, f. o. b. Quality A No. 1.

F. A. ALEXANDER, Esperance, N. Y.

FOR SALE.—Honey, both one-pound boxes and extracted, basswood. A No. 1 article; cheap as the cheapest. Please furnish a trial order.

J. B. MURRAY, Ada, Ohio.

FOR SALE.—**Japanese Buckwheat, $1.50 per 100 lbs. Bees, Peach Trees, Raspberry and Blackberry Plants.**

A. P. Lawrence's Fruit Farm,
Hickory Corners, Mich.

CHAS. ISRAEL & BROS., 110 Hudson St., N. Y.

WHOLESALE DEALERS & COMMISSION MERCHANTS. Established 1875.

HONEY —AND— BEESWAX.

LIBERAL ADVANCES MADE ON CONSIGNMENTS.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

☞In responding to this advertisement mention GLEANINGS.

Local Supply Dealers,

I am getting out a circular that will be of special interest to you. Send me your address, and when the circular is out I will send you a copy. Never mind if you sell supplies only to your bee-keeping neighbors, you are the very man to whom I wish to talk, and I have something to say—a plan to unfold—that will be of mutual benefit.

W. Z. HUTCHINSON, Flint, Mich.

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Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange supplies and other goods for honey. O. H. HYATT, Shenandoah, Iowa. 20tf

WANTED.—To exchange a Noxal 200-egg incubator, used 3 settings, at $15, comb foundation at market price, and extracted honey at 8c, for honey-boards, supers, and brood-frames, cut to order.
R. C. AIKIN, Loveland, Col.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange new goods, including Hand Seed-Drills and Cultivators, selection from 1200 Standard Books in 18 languages, and Bibles, from 45c to $60, for 2 GOOD second-hand job printing-presses; also honey.
W. H. GARDNER, Allegan, Mich.

WANTED.—To exchange pure-bred English Beagle hounds, pups or trained dogs, male or female, choice stock and sure hunters, for Winchester shotgun, or double gun of modern style.
D. S. HALL, So. Cabot, Vt.

WANTED.—To exchange for Barnes buzz-saw, 2 Wilson's handmills, 1 Planet Jr. garden-drill.
G. A. LUNDE, Stoughton, Dane Co., Wis.

WANTED at once, 100 or more queens in exchange for good first-class white extracted honey. Will give 110 lbs. honey for each dozen Italian or Carniolan queens, and 60 lbs. per dozen for HYBRIDS. None over 1 year old.
A. F. BROWN, San Mateo, Putnam Co., Fla.

WANTED.—To exchange No. 1 extracted linn honey, for home-made cheese, full cream, 8 to 15 lbs. each. Please mail prices.
J. B. MURRAY, Ada, Ohio.

WANT work with bees in Cuba, by a man wh knows how to do it
FRANK CURL, Key West, Florida.

WANTED.—To exchange 25-lb. aluminum Bicycle, and 35-lb. steel bicycle, for foot-power saw, turning-lathe, etc.
ROBERT B. GEDYE, La Salle, Illinois.

WANTED. — Home with refined party; knows cooking, makes pastry, cake, and bonbons; does plain and ornamental sewing, cutting, fitting; knits and crochets; could care for and educate young children; music, French; cheerful companion. Could advise in apiary, or lecture on bee-keeping. Persons agreeably situated, apply to Junior Editor of this journal.

WANTED.—Two or three Scotch Collie or Newfoundland dogs. Address with price,
W. D. ALLEN, Kosse, Texas.

CONVENTION NOTICES.

The next regular meeting of the Central California Bee-keepers' Association will be on the first Wednesday in December, at Hanford, Cal. J. F. FLORY, Sec., Lemoore, Cal.

Let everybody come to the Midwinter bee-meeting, Beeville, Tex., Dec. 27 and 28. Half fare on all railroads. No hotel bills. The meeting will be at Mrs. Jennie Atchley's apiary, two miles north of Beeville. JENNIE ATCHLEY.

The next annual convention of the Vermont Bee keepers' Association will be held in Middlebury, Vt., Jan. 30, 31, 1895. Programs will be prepared and mailed later. Let every bee-keeper, whether Vermonter or not, begin now to lay his plans to attend this meeting. H. W. SCOTT, Sec., Barre, Vt.

The Indiana State Bee-keepers' Association will hold its 15th annual meeting at the Statehouse, Indianapolis, Jan. 9th, 1895. There will be three sessions. Several other associations will convene here at the same time, thus securing 1⅓ fare for the round trip; but a certificate must be asked for when buying your ticket. Programs will be ready in December.
WALTER S. POUDER, Pres., Indianapolis.

The annual meeting of the Northern Illinois Bee-keepers' Association will be held in the supervisor's room of the courthouse, in Rockford, Ill., Dec. 18, 19, 1894.
B KENNEDY, Sec., New Milford, Ill.

The Northeastern Ohio and Northwestern Pennsylvania Bee-keepers' Association will hold its regular annual meeting in the parlors of Hotel St. Nicholas, Corry, Pa., Nov. 21, 22, 1894. A good program is arranged. Bring questions for the question-box. Hotel rates, $1.00 to delegates. All are invited, especially the ladies. GEO. SPITLER, Mosiertown, Pa., Sec.

FINEST LOT OF SUPPLIES EVER BOUGHT.

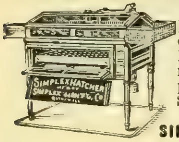
The goods you sent me some time ago were received in good shape, and they were all first-class. It was the finest lot of bee-supplies I ever bought.
Defiance, O., May 23. WM. L. HIRE.

OUR DOVETAILED WORK.

I have to supply most of the farmers around here with hives and sections. I got a good many hives from another party last season (the Dovetailed). I got them some cheaper, but I found that they were dearer in the long run, as they were not as neatly finished as yours, so I want no more of them.
Poneto, Ind., May 14. J. W. COOK.

Goods all received in fine condition. I thank you for promptness, and the good manner of packing. I now have some over a hundred young laying queens, daughters of the last imported queen received from you. It is too late in the season to report them, but can say they are starting in right, and fill the Langstroth frames from end to end with eggs. I will give them a chance to hustle next season. C. KLOCK.
Pearsall, Texas, Oct. 31.

SIMPLEX HATCHER & BROODER Combined.



THE MOST PERFECT Incubator Made. Hatches every egg that a hen could hatch; Regulates itself automatically; Reduces the cost of poultry raising to a minimum. Send for Illustrated Catalogue.

160 Egg size $16.00.

SIMPLEX MANF'G. CO., Quincy, Ill.

HATCH CHICKENS BY STEAM WITH THE MODEL EXCELSIOR INCUBATOR.

MODEL
EXCELSIOR

Lowest priced First class Hatcher made.

Thousands in Successful Operation. *SIMPLE, PERFECT, and SELF-REGULATING.* **Guaranteed** to hatch a **larger percentage** of fertile eggs, at **less cost,** than any other Incubator. Send 6c. for Illus. Catalog. Circulars Free.

GEO. H. STAHL, 114 to 122 S. 6th St., Quincy, Ill.

Burpee's *Seed Annual* for 1894 is well worth having. Tell to all who plant seeds

W. Atlee Burpee & Co., Philadelphia, Pa.

Why Not? **Bottles. Jelly-Glasses.**

Supply your nearest grocer with honey in bottles or glass; it will pay you to do so. Square (flint glass) bottle holding exactly one pound of honey, six-dozen case, including corks and labels, with blank space on label for writing your name, $2.75.

Tin-top jelly-glass, holding 11 oz. of honey, six-doz. box, $2.00, or 20 doz. barrel for $5 50. This includes labels with blank space for writing your name.

Bright yellow beeswax taken in exchange at 27c per pound. 21-22

Tweed & Pritchard, 1135 Liberty St., Pittsburg, Pa.

☞In responding to this advertisement mention GLEANINGS

PURE SUGAR-CANE SYRUP.

For table use and for bees it has no equal. I put this syrup up in barrels holding 26 and 52 gallons each, and in kegs holding 10 gals. See F. D. Woolver's letter in Jan. 1 GLEANINGS with editor's foot-note, for further information. 21-22

J. H. ELLIS, Kentwood, Louisiana.

☞In responding to this advertisement mention GLEANINGS

Warranted Queens, 75c.

Five-band strain, bred for *business,* six for $4.00; dozen for $7.50. See former *ads.,* and send for circular. Safe arrival and satisfaction *guaranteed.* **J. B. CASE, Port Orange, Fla.**

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb **Sole Manufacturers,**
Sprout Brook, Montgomery Co., N. Y.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT

$1.00 PER YEAR MEDINA OHIO

Vol. XXII. NOV. 15, 1894. No. 22.

STRAY STRAWS
FROM DR. C. C. MILLER.

Some nice men use tobacco. If they didn't use it they would be nicer.

Every farmer's boy who wants to go to the city ought to read page 848.

An advertisement. This is to give notice that I have no honey to sell.

That photograph of bee-keepers taken by Hutchinson at St. Jo is a gem.

When begins the bee-year proper? Certainly not with Jan. 1. Is it October, November, or when?

Honey imported in the British Isles in 1891 to the value of $172,000; 1892, $318,000; 1893, $145,000.—*B. B. J.*

Hauled home last bees from out apiaries Nov. 3. [I supposed your climate would require earlier hauling.—Ed.]

Glossometers, or instruments for measuring bees' tongues, are being worked up by the French. Some are quite complicated.

Turnip-patches and greenhouses must be scarce about St. Joseph. A. I. Root wasn't absent from a single session of the convention.

Dreary winter is coming, and I wouldn't be without a growing plant in the window, even if I could get nothing better than a turnip.

Dandelions have sent out a third swarm this season. Oct. 25 the blossoms were as thick in my pasture as in spring, and bees were quite busy on them.

Gravenhorst thinks that, instead of only a few laying workers being in a colony, the majority of them become such. [I am inclined to think he is right.—Ed.]

Tooth-wash. Put 8 or 10 drops of carbolic acid in a glass of water. Wet your brush and rinse your mouth with it, and see how sweet it will leave your mouth.

When I read on page 848 about 200 families living in one house, my wife said, with a look half of awe on her face. "We've lots of room!"

Nov. 5, bees that had been hauled home Nov. 3 flew at 40°, while those of the home apiary remained quiet in their hives. The hauling made a flight necessary.

Abbe Baffert, in *L'Apiculteur*, says that, when a cloud comes up, bees at a distance hurry home, while those near by keep on at work. Cunning creatures!

Henry W. Brice, *B. B. J.*, in queen-rearing, uses wax cups on the Doolittle plan; but before putting larvæ in them he submits them to the bees for 24 hours to see if they accept them.

So you're going to send out top-bars ⅝ thick in 1895. Sorry. I'm afraid they're not so good as ⅞. [Practically, I think you will see but little if any difference should you try them on a larger scale.—Ed.]

Hutchinson, in *A. B. J.*, objects to having the time of a convention taken up with essays that could just as well be read in the bee-journals. He's had a spirit-level on his head. [Yes, I think so too.—Ed.]

In moving bees short distances, Abbe Baffert found them troubled by a removal of 20 inches the first day, but after that they seemed to learn the trick, and found the hive sooner although moved farther.

The Hatch-Root controversy seems to be shifting in this direction: Will bees do as well in two stories as with the same amount of room in one story? [Yes, let that phase of it be discussed. It is important. See Mr. Gill's article, this issue—Ed.]

Friend Anthony, where did you get the idea that I want a thick top-bar "for the bees to wipe their feet on"? I'm not anxious about their feet; it's their *jaws* I want to stop from carrying black wax up into the super.

A big point in favor of the Higginsville cover is the thin edge. It will not curl up as does the ⅞ thickness. Then it can hardly twist like a single board. [Yes, one board will help to offset the naughtiness of the other.—Ed.]

Robbers. That way of fighting them, mentioned on p. 825, I've practiced successfully for years, using grass, hay, or straw. But don't use half-way measures. Pile up to the top of the hive, and then pour on water by the pailful, and keep it poured on.

One reason, perhaps, that queens went up and down from one story to another for me more than for C. A. Hatch was, that I had ¾ inch of burr-combs and honey between the two stories. [I had thick-top frames and no burr-combs, and the queen went up "all 'e samee."—Ed.]

Laying workers, according to Herr Duerr, in Gravenhorst's *Bienenzeitung*, come about in this way: When the colony becomes queenless, the nurse-bees, having nothing to feed, have themselves the benefit of the extra nourishment they would have fed to larvæ, and thus are stimulated to laying.

In Germany, beginners applying to the secretary of the Schleswig-Holstein Association can have a suitable person sent to instruct and assist in putting bees in winter quarters or in taking them out. Charges, 12½ cents for an apiary, or 2½ cents per colony if there are more than five colonies in the apiary.

Those small frames mentioned on page 789 were certainly not very small—about 2 ft. square—but it should have read "6 square decimeters," or something like 9x10 inches. "Six decimeters carrés" is not "six decimeters square," but "six square decimeters."—[You are doubtless right, but we had no way of knowing any thing about it aside from what Mr. Norman wrote.—Ed.]

"Weeds and things" is my "best holt," Ernest. I lose less money on them than on any other crop I can put in, aside from their use to "mark the locality." See p. 833. [Your yard was no worse in point of weeds than the yards of most bee-keepers I have visited. The fact is, many of them furnish either pollen or a little honey. Sweet clover grows rank and thick about most bee-keepers' homes. But, say, the way that small boy "marked your locality" was a joke too good to keep.—Ed.]

In Russia, Tseselsky reports the average consumption of honey from Nov. 15th to April 1st thus: In single-wall hives, 11.68 lbs.; in double-wall hives, 8.93 lbs.; in a cave with temperature varying from 33 to 50°, 4.63 lbs.; in a dark room kept steadily at 64°, 4.56 lbs.; buried in the earth, temperature 46°, 4.52 lbs. This was in a mild winter, the thermometer never going below 3° above 0, Fahr. I've always thought of Russian winters as colder than that. [Here indeed are some valuable data. They are not far from right, because they agree essentially with some experiments in this country.—Ed.]

Our Symposium.

LARGE OR SMALL HIVES.

The Effect of Locality, Season, and Size of Colony; The Hives that Averaged those Barrels of Honey in Florida; Misconceptions Corrected, and a Little Pepper and Salt thrown in; Tendency of Swarming in Small Hives; Valuable Testimony from Some of the Brightest and Most Extensive Honey-Producers in the World.

THAT "SWEETENED WATER;" EIGHT-FRAME HIVES THREE STORIES HIGH PREFERRED TO THE TEN-FRAME TWO-STORY.

By H. W. Mitchell.

In Gleanings for Oct. 15 I find an interesting article by A. F. Brown, giving statistics of the honey crop in this location that are, in the main, correct. But he makes a grave charge when he states that "some harvested sweetened water instead of good No. 1 honey—noticeably those who had secured the big yields."

Friend Brown would certainly not publish a charge of such import unless he were absolutely sure of his facts; so, as one of the bee-keepers who must plead guilty to having a "big yield" this season I call on him for facts and names; and even if it works injury to one or two bee-keepers, that surely would be the lesser of two evils; for, as the statement now stands, it will injure every bee-keeper in this section (excepting Mr. Brown, whose honey is presumably good No. 1), inasmuch as it will injure the sale of their product; for no buyer can be certain that he is not dealing with one of the bee-keepers who have been putting up "sweetened water." "Those who secured the big yields" is rather too sweeping a classification; for if, as Mr. Brown asserts, "200 lbs. would be about the correct average," then about all the bee-keepers mentioned in his article would come under the head of "big yields," for they obtained considerably more than the "correct average."

I am inclined to think that friend Brown has either gone too far in what he states, or not far enough.

In footnote on page 794, you express a desire to know more in regard to the size of hive used, etc. I use the eight-frame Dovetailed hive, three stories high, exclusively, in my own apiary. For several years I used the two-story ten-frame hive, but greatly prefer the eight-frame three stories high, as it enables me to gain all the advantages of a large hive without having to do any heavy lifting. I use seven frames in the two upper stories, for extracting from, and practice tiering up to thoroughly ripen my honey; at the same time I give the bees plenty of room to store.

I extract from the upper story, then lift up the second one, and place the extracted one underneath. This placing of seven empty combs right in the middle of hive seems to in-cite the bees to do their best to fill that empty space; for the way they will pile the honey in there is astonishing. In the meantime the full combs in the upper story, being in the warmest part of the hive, are thoroughly ripened and capped over ready for extracting by the time the second story is full enough to be lifted up. I claim by this method to obtain more well-ripened honey than would be possible with a two-story hive.

Equally good results could be obtained with the ten-frame hive worked in the same manner, but it is too heavy to handle; but I find I can handle the eight-frame body, with seven frames of honey, without any great muscular effort, although I am any thing but a Hercules.

Having three stories entails some extra handling to lift the second story off, put the empty one in place, and the full one on top again; but to offset that, a little smoke puffed into a third story of capped honey depopulates it of bees to such an extent that the brushing-off is a small matter compared to the same operation with a two-story hive. Then there is less trouble with swarming, less hanging out, and making increase is as easy as falling off a log. I merely lift off the third story, see that it has a frame of brood in all stages; move the two lower stories to a new location, leaving the single story in the old. The bees already on the combs, reinforced by the field-bees, give me a strong colony that never fails to raise a good lot of queen-cells.

In extracting I run honey from the extractor through cheese-cloth into a large tank holding about 1600 lbs., where it stays until I need more room, when I draw it off from the bottom into barrels, for shipment. I have used the two-frame Cowan the past season, and like it better than any other extractor I ever used.

Hawk's Park, Fla.

[Immediately on receipt of this I forwarded it to friend Brown, stating that I was sure he did not intend to convey a wrong impression, and thus do any one of his bee-keeping friends an injustice; that I should be glad to have him reply for print; adding that I was sure there must be some mistake or slip of the pen. His answer will fully exonerate him in the eyes of his friends.—Ed.]

THAT "SWEETENED-WATER" HONEY IN ITS APPLICATION—A SLIP OF THE PEN.

By A. F. Brown.

Friend Root:—Certainly a reply and explanation is due from me in correcting the wrong impression and injustice my recent article seemed to give as it reads therein. I assure you I was quite surprised myself when my eyes *reached* the two paragraphs in question, and I at once wrote you, on the 23d of Oct., correcting the two errors, and also replying, in a measure, to your footnote. Evidently you have not received my letter, and I will again restate the errors. They are, first, in fourth paragraph, seventh line. It should read "two-story ten-frame hive," and not "three-story," as given. Again, in fifth paragraph, sixth line, it should read, "With *some* of those," etc., and not "*with those.*" The words "some of" apply quite a different reading to the paragraph.

I write very rapidly, and no doubt the error and omission are errors of mine. I certainly would not knowingly do an injustice to any one; on the contrary, I try to give all full measure and credit, and in the case of Mr. Mitchell, who happens to be the man who produced the largest yield per colony, I can not do less than to say that no man produces a better grade of honey than he produces under his management, as set forth in his article, and I commend this method to every honey-producer on the East Coast, and I am sure that neither I nor any other man will have any occasion to refer to unripe, thin, and inferior honey, if all would follow out the method of allowing the bees to fully ripen the honey before removing it from the hives.

Mr. W. S. Hart, the second heaviest yielder, wrote me a personal letter, saying he thought I had not done his honey justice. Very true, as the article appeared; but as corrected I believe justice is done to all. Mr. Hart runs his honey through an "evaporator," and reduces it all to a uniform thickness and quality, and nothing can be said against the quality.

There is no need of my setting myself up as a target in the way of repeating or making a list of names, and going into details as to the special qualities of the honey produced by a score or more men. But any one who will attempt to buy up honey from any and *all*, as I have, will not be long in finding out that there is much honey far below the standard, and which could not be called much less than sweetened water—honey that would not weigh even 10 to 10½ lbs. per gallon.

San Mateo, Fla., Nov. 1.

[The letter of the 23d referred to does not seem to have come to hand, as a search through our office fails to reveal it. A comparison of the original manuscript of the article to which friends Mitchell and Hart refer shows that it was printed according to copy. But such slips of the pen are easily made, and in this case certainly seem pardonable; but so far as I am concerned I am glad in one sense that it was made; for it has been the means of calling forth a couple of very valuable articles that we probably should not have received otherwise. "All is well that ends well."

If a few have been extracting honey little better than "sweetened water, a little caution will do no harm. Mr. Brown did mention the name of one bee-keeper whom he had especially in mind; but we have suppressed the name. He alludes indirectly to some others, but they do not appear to be among the progressive and prominent bee-keepers, and hence all reference to the matter was omitted.—Ed].

THAT "SWEETENED WATER;" THE SPECIFIC GRAVITY, AND HOW DETERMINED OF FLORIDA HONEY; TWO-STORY TEN-FRAME HIVES; AN ARRAY OF VALUABLE STATISTICS ON FLORIDA DURING THE PAST SEASON.

By W. S. Hart.

After reading Mr. A. F. Brown's letter, on page 796, wherein I find some remarkably sweeping statements that, uncorrected, are calculated to give the world the impression that the greater portion of the honey from this section is but "sweetened water," from being extracted before it should be, and that the majority of the apiarists are either knaves or fools, with Mr. H. W. Mitchell and myself at the head of the procession, I loaded up my biggest gun, metaphorically speaking, with a charge that would pepper that letter, from address to signature, so full of holes that it would not hold oranges if used for a wrapper. This charge would have blackened the face of three pages, at least, of your journal, and was made up of statements of facts and figures and essays on proper size of hives for this section, curing honey, winter stores, migratory bee-keeping, and stimulative feeding—the summing-up of the most valuable lessons learned in 18 years of study, experience, and observation, of exceptionally successful bee-keeping. Having a soft spot in my heart for friend Brown, however, and not desiring to "shoot to kill," I gave him notice that something was going to happen, in consequence of his strictures, so that he might shelter himself and get hurt as little as possible by the fusillade. In reply I got a letter from him, thanking me for the notice. . . . .

[Mr. Hart here gave extracts from Mr. Brown's letter; but as it is in substance like what he has written in reply to Mr. Mitchell above I omit it here to avoid repetition.—Ed.]

Well, after getting this letter, which so carefully disclaims all evil intent, and at the same time sets myself and some others partly right, I rolled up my MS., and for the present, at least, its valuable contents is lost to the bee-keeping world. I have not the time to give to the discussion and correspondence that it would call out. I may at some future time give the parts that treat of curing honey, and the secrets of obtaining large crops of extracted, for I am egotist enough to think that they contain methods that, if adopted, would add very largely to the income of many of the apiaries of America, and at the same time furnish as good (or a better) quality of honey.

There are a few points in Mr. Brown's letter, however, that I will touch upon before I leave it.

My orange crop kept my men and myself busy picking, packing, and shipping, almost constantly from Dec. 9, 1893, up to April 14, 1894, except that I was called away about the middle of March, and kept from home a month, at just the time of all others that my bees needed me. I had been so busy for over four months that my bees had been examined but twice in that time—once by myself and once by a novice at the business. No stimulative feeding was done in April, as is my custom. The result was, I went into the summer flow with about twelve very poor or queenless colonies, 116 in all. I came out of the flow with 116 colonies in fine shape, a little over 41,000 lbs. of honey, and 300 to 400 lbs. of wax, nearly all from cappings, that can not be excelled. This gives me an average, right through, of 353½ lbs. of honey per colony, instead of 344, as Mr. Brown gave it. A colony that has been kept on scales for three years past, but has had no extra attention of any kind, except its weight being often taken, yielded 534¼ lbs., carefully weighed. I had considerably more than that from a few hives, and I am satisfied that two or three gave me 600 lbs. each. I am glad to say I tested the specific gravity of this honey with my hygrometer, and Messrs. Brown and Storer's as well, and I have them as well as other witnesses to testify that it tests fully as high as theirs, and ten and twelve degrees, according to kind, higher than the "usual thickness of ordinary extracted honey," as given on page 408 of same issue of Gleanings (I think you, Mr. Editor, must have made an error of ten degrees there).

[I find that the scales vary on the different makes of hygrometers. Perhaps yours is a different make, and hence the different readings.—Ed.]

As to extracting twice a week, I will confess that I could not do that, as I am not up to extracting 2500 lbs. of fully capped honey in 4½ hours, even if it is all at hand, and I have an assistant. It takes me 3½ days to make a round of extracting, with one man to help, and I have other business to attend to ouside of my apiary. I made one round a week most of the season, but not as often toward the last. My hives are two-story ten-frame, with but nine frames in the top story. I extract only from these nine frames. Mr. Mitchell's eight-frame hives were mostly tiered three high.

Mr. Brown says, in his published letter, "Again, some extracted so close that their bees will regain a good share of it back before they will meet any more coming in." "Others left 50, 75, or 100 lbs. in their hives. All these items figure in and materially change the face of many of the yields."

I hope no one will commit the error of counting me as one among the first. My hives will average now, after the August and September drouth, about 50 lbs., and honey is coming in faster than it is used. Nor do I want to be counted still more foolishly at the other extreme, crowding my queens with a full hive of our choicest white honey while the field-bees mix it with the dark fall crop by tucking the latter into what few available empty cells they can find here and there, or else lie idle for want of room for it. I hardly think Mr. Brown would leave his hives in this shape either, as he has "migrated" enough to learn the evils of moving bees 75 miles overland, with 75 to 100 lbs. of honey in them.

I give below the statistics of most of the apiaries in the territory covered by this letter, but extending some five miles further north than that covered by Mr. Brown's. These will be found to vary somewhat from those given by him: but they are as correct as careful attention in collecting could make them. It will be seen by these that the narrow strip, nearly all lying between the J., St. A. & I. R. R. R. and the ocean, with Port Orange on the north and Oak Hill at the south, produced this year about 200 tons of honey.

	Cols. in spring.		
E. A. Marsh	100	increased to 150	31,560
Tom Adams	70		24,000
E. O. Clinton	78		23,000
Mr. Husky	19		4,000
J. Dial	10		1,863
H. S. Barker			610
E. G. Hewett			4,455
John Olson	38		12,150
C. W. Barber			15,000
O. O. Poppleton			22,000
Mr. Moore	57		12,000
John Abbott			9,200
E. M. Storer	275	2000 lbs. comb honey	42,000
A. F. Brown	208	9000 lbs. comb honey	42,000
W. P. Wilkinson	19		5,200
W. S. Hart	116		41.000
H. W. Mitchell	57		21,500
J. P. Turner	14		1,325
A. S. Brown			200
Chas. Alden			750
R. S. Sheldon			3,250
J. Y. Detwiler	15	increased to 50	2,200
H. Luthge	18		5,000
T. G. Lindberg	6		573
H. H. Robinson	60		12,000
J. B. Case	50	run for honey, many nuclei for queen-breeding.	19,000
P. Johnson	78		16,000
C. Jones	45	300 lbs. comb honey	10,400

Hawk's Park, Fla., Oct. 29.

[We should be very glad to get that article, or one like it, on your method of curing honey, and, incidentally, your ideas on the size and shape of hives.—Ed.]

PROPOLIS FOR WARMTH; FOUNDATION; THE LONG-IDEA HIVE PREFERRED TO ONE OR MORE STORIES OF THE EIGHT-FRAME HIVES; THE LIFTING QUESTION NOT A SERIOUS ONE WITH LARGE HIVES; IMPORTANCE OF A HIVE REGULATED TO THE SEASON AND TO THE COLONY; A COMPARATIVE STUDY OF LARGE AND SMALL HIVES VALUELESS.

By O. O. Poppleton.

The reading of GLEANINGS for October 15 suggests a few notes.

Ask Dr. Miller why, if bees do not propolize for warmth (see Straw on first page), they do so much more of it late in the season, when the weather is growing colder, than early, when it is growing warmer.

I think Mr. Galvin and Dr. M.'s assistant are needlessly alarmed (Straw on page 788), about bees cutting out foundation that is fastened to the bottom-bar; at least, my bees aren't so naughty. Possibly, shape of bottom-bar has something to do with it. Mine are very narrow —$\frac{3}{16}$ inch.

On p. 794, in your footnotes discussing small vs. large hives, you speak of the fun of handling—that is, lifting 12-frame hives and long single-story hives. Why, bless you, friend R., this very question of lifting the upper stories of hives is why I long ago discarded all forms of double-story hives, and adopted the long single-story hive, such as I use exclusively. Of course, there were other reasons; but that is the principal one why I stick to that style. My general health is so poor that it would be practically impossible for me to handle a fair-sized apiary if I had to handle hives. I doubt whether, in the ordinary management of an apiary, I lift any, certainly not half a dozen, large hives containing bees, combs, and honey, in any one season.

On the same page, Mr. Dayton calls attention to the importance of having the size of brood-nests regulated to the season; and *I* would add, to the colony. I called the attention of your readers to this point a dozen years ago, while giving a few of the advantages of single over double story hives. It would be a good thing if your readers' attention could be called to that idea quite often by such articles as Mr. Dayton's. Good things will bear a good deal of repetition.

So far as large single-story hives are concerned, I think the latter half of your footnotes on p. 796 do not apply. Except for extra frames of comb, a large single-story hive uses exactly the same number of pieces, covers, division-boards, etc., whether it contains a large or small colony; and there are no extra pieces to store away when necessary to reduce any colony to a small brood-nest.

On the same page Mr. Brown gives partial statistics from the Mosquito Inlet honey-fields which are, I think, fairly correct, and within bounds. In saying a barrel of honey, we usually mean about 400 lbs.; but reports should always be made in something having a fixed and definite value, as pounds or tons.

All who may hear of our large yield of honey this year should understand that the yield has been a phenomenal one—very much so too—and is confined to one or at most a few localities. Not long ago Mr. Hart allowed me to examine his honey-records for nearly 20 years past; and this year's record excels the best of any previous one by about 40 per cent. I do not expect to see another season its equal; but this is pure speculation, of course.

In your footnotes on p. 794 you suggest the study of our reports this year relative to the comparative value of large or small hives. In my opinion such a study would be absolutely valueless, because the other conditions in each apiary have been so different from any others. Thus, four of us, Capt. Webster, Mr. Stover, Mr. Brown, and myself, practice migratory bee-keeping, and all four of us this year had a lighter yield than did nearly all who kept their bees in the same locality all the time. This differs from our experience during the four preceding seasons. Of course, our yields can not be compared with the stay-at-homes, so far as the influence of certain hives is concerned. A comparison of the yields of us four migratory folks proves nothing in that same line, as no one of us occupied a locality similar to the one occupied by either of the others. Part of the mangrove field was much more congested with bees than were other parts, there being in the immediate vicinity of Hawk's Park some three times as many colonies to the same space as were in other localities. Conditions in each apiary differed from conditions in other apiaries. Thus, one apiary was as large as the owner wanted, and nearly all colonies were old ones, and strong early in the season. Another was the reverse of this, but had all young queens as an offset. Another bee-keeper was sick during part of the early harvest, and was forced to neglect his bees at an important time, etc.

You say you hardly know what is a big record for extracting. While in Cuba we had a native Cuban do our extracting, and his average work was about 250 lbs. per hour. He did all the uncapping, extracting, and cleaning burr-combs off the top of the frames, using a six-frame non-reversible extractor. This is about the same as Mr. Brown did; but I hate to think that a young active American, like Mr. Brown, can equal only one unskilled Cuban in such work.

Potsdam, Fla.

[The record of the Cuban was accomplished with a *six*-frame non-reversible extractor, while Mr. Brown's was performed with only a *two*-frame machine. True, it was a *reversible*, but here is the secret of the rapid work. A small machine starts and stops quicker, is easier handled in every way, and when it is made reversible it will equal the work of a six-frame non-reversible and a six-footer Cuban. Mr. Brown is not a large man, and that Cuban was probably his equal if not superior in strength. Therefore I think our American, Brown, really holds the record.

A comparative study of the sizes of hives may not be entirely satisfactory, but I think some facts may be gleaned nevertheless, and hence I'd like to see an attempt at it. Regarding the Long-idea vs. the two and three story 8-frame hives, let me refer you to the article of M. A. Gill, just following.—Ed.]

THE TIERING-UP PRINCIPLE OF THE EIGHT-FRAME HIVE; THE EIGHT AND TEN FRAME TRIED SIDE BY SIDE, WITH RESULTS IN FAVOR OF THE FORMER, AND WHY.

By M. A. Gill.

What has become of the tiering-up principle of the movable-comb bee-hive? It seems to have become one of the lost arts to at least some bee-keepers, for they have forgotten that they can *tier up* and thus meet the requirements of an increasing colony, but are taking up the old "long idea" plan, not back of the brood-nest with the Adair or Gallup frame, but off sidewise with the Langstroth frame.

Where one writer suggests from eight to ten, another from ten to twelve, and another suggests fourteen frames, what is it but the old "long idea," and that off sidewise, as though they had forgotten both principles—that of tiering up, and the true long idea. I have not been without both eight and ten frame Langstroth hives side by side for the past ten years; and I must say I decidedly prefer the eight-frame hive for my locality, and I live less than thirty miles from Bro. Hatch; but I am aware that our forage is somewhat different. My surplus comes from basswood, having only three times in eighteen years secured a small crop of clover honey, but nearly always enough to build up on, ready for the basswood flow.

Now, if any ten or twelve frame advocate were in my location, and would agree to use no dummies in the spring, and only one super in the harvest, I think I could convince him that his hive was too large in the spring and *too small* during the harvest. Our spring seasons are usually cold and backward, and bees do not build up fast until after May 20. That leaves us only three weeks to secure our basswood-workers. Like Doolittle, I do not want them any sooner, for there is nothing for them to do but consume; and I have always noticed that a colony whose queen has exhausted herself early in the season comes up to the honey season much behind the colony that has reserved its force until the proper time; and bees in ten-frame hives are not so provident in early breeding, on account of the extra honey the hive will contain. I find that, in any size of hive containing L. frames, after bees have six or seven frames *well* filled with brood, they would *much* rather occupy two frames directly over the seven than one at each side of the seven. Heat rises, as any one can see by watching a burning brush-pile. One will notice, too, that the heat will seem to come to a point at a limited distance, the outside heat being drawn to the center by its intensity. To illustrate, go out some morning when the hives are covered with frost, and look at the size of the melted spot on a one-story, two-story, and three-story hive. My bees, at least, much prefer to economize this heat for breeding-purposes than to warm up more room at the side.

Candidly, it seems to me that eight frames is the "happy medium" between too much and too little; and with that splendid feature added (tiering up), all that could be asked in a bee-hive is obtained.

Right here I wish to go on record as saying that I do not consider any colony in prime condition for the basswood flow with less than 24 L. frames. Going farther, I know that the same colony will gather as much surplus in five to six days, when given two sets of comb, as will take it eight days on one set.

Hold on! I have got to fix up the fence a little (not Dr. Miller's), or Bro. Hatch will sharpen this point I have made, and ruthlessly stick me with it by saying, "There, Gill, you are admitting your hive is too small." I plead guilty. It *is* too small when I want a large hive; but I can tier it up till I need guy-ropes, if necessary; but your hive is too big when I want a small hive, and too small when I want a big hive; for you will certainly admit that it would be no fun lifting off any thing more than one super holding ten frames.

Viola, Wis.

[It is natural for us to indorse the opinions of one whose experience has been in line with our own; and so I agree with friend Gill, because his experience has been mine. I can't understand why friend Hatch should find that queens are loath to enter the top story, especially as he is only 30 miles from you. Then there is E. France, who finds brood in two stories of eight-frame bodies, and he is not much over 100 miles away. About 100 miles south of Mr. Hatch is Mr. Harry Lathrop, a strong advocate of the eight-frame size, and his crop of honey this season was large. I said I couldn't understand why there should be this difference; but upon second thought, ten miles, as we all know, sometimes makes a big difference in the locality.—Ed.]

W. L. COGGSHALL ON EIGHT VS. TEN FRAME HIVES; A FEW INTERESTING FACTS AND FIGURES, IN WHICH THE EIGHT-FRAME COMES OUT A "LEETLE" BIT AHEAD OF THE TEN-FRAME HIVE.

By Harry S. Howe.

During a recent visit to Mr. W. L. Coggshall, the subject of Dr. Miller and the fence came up. At my request, Mr. Coggshall referred to his complete honey-house record to see whether or not he had any thing which would help the doctor down from his seat on the top rail of the eight vs. ten frame fence.

Number.	Name.	Spring count.	Increase.	Fall count.	Extracted Honey.	Comb Honey.	Average extracted.	Style of hive.	Miles from home.	Chaff packed.
1	Smith's	50	18	68	3200		64	Kidder 8	¼	25
2	Pine Woods	72	23	95	8200	300 (8 cols.)	128	L. 8	4	40
3	Varna	90	40	130	8600		95½	L. 8	10	42
4	Bacon's	80	15	95	3300	1500 (30 cols.)	66	S. 10	6	50
5	Ellis	67	11	78	6000		89½	L. 8	15	
6	Lansing	55	17	72	7500		134½	L. 8	9	20
7	Brown's	50		50	6000		120	Eclectic 10	9	50
8	Etna	34	11	45	1200		35½	L. 8	10	20
9	Forest Home	42	15	57	4500		107	L. 8	12	20
	Totals	540	150	690	48500	1800				

Just a word here in regard to those records. They consist of pieces of smooth boards, nailed up in each honey-house, on which are written all items of importance regarding the yard as a whole, such as date of unpacking, amount of honey, etc. From the copy of these records kept at home, the above analysis of the results of the yards is compiled. The yards are numbered in the order in which they were established. The honey is largely buckwheat, and very fine.

From the above table it would seem that location makes more difference than any thing else. The two ten-frame yards averaged 93 lbs. of extracted honey. The seven eight-frame yards averaged 93¾ lbs. This would lead me to think that, so far as extracted honey is concerned, the fence is the place yet awhile.

There are some things not shown by the table, which may have some influence upon the results. The colonies run for extracted in number four were, perhaps, a trifle weaker than those run for comb; but to balance that, is the fact that there was no increase in number seven, as there was no winter loss. In fact, there has not been over one per cent of loss there since the yard was established. Yard number four also seems to winter very nicely. The difference is probably partly due to the difference in location, as there was considerable variation in that respect in yards which were apparently just the same last fall. The yards all received nearly the same attention. There is no home yard and no pet yard to get extra work. Hoffman frames were used in the Eclectic hive.

The conclusion reached by Mr. Coggshall was that, so far as extracted honey is concerned, there is no material difference. They winter slightly better in the ten-frame hives. There are two more combs to handle in each hive to get the same honey in extracting, and the ten-frame hives are not so apt to swarm.

Kings Ferry, N. Y.

[Coggshall's table of figures is interesting and valuable because it is evident that it was not fixed up to prove that either the eight or ten frame was the better size; but it does show pretty clearly that the smaller hive holds its own against the larger. The table shows, also, that it was a no one or two hive record, but one that is made up from over 500 colonies. Coggshall is and has been one of the successful ones. He doesn't write much, but he knows much about getting big crops of honey.—Ed.]

EIGHT AND TEN FRAMES; A COMPARATIVE TEST, WITH THE DIFFERENCE IN FAVOR OF THE LARGE HIVE.

By S. C. Corwin.

Two-story brood eight-frame hives won't work. I started 10 years ago here in Florida, with 25 two-story Simplicity hives, with 7 wide frames for comb honey. A few years after you brought out the T super I made 20 hives, taking 9 frames and a T holding 24 one-pound sections. Soon after, I got 20 hives, 8-frame. I ran these one season for comb honey, using one story and T supers. At the end of the season my crop from those hives convinced me that eight frames was too small. The next season, when the lower story was full of brood, I gave a second story to enlarge the brood-chamber. I soon found the queens in the upper stories, and later I found that the queens occupied only five or six frames in the lower story, and about the same in the upper. The following spring the queens had left the lower story without brood, and were occupying the upper story, requiring the raising of the lower stories (lots of work), and gave me only 10, or in some cases 11, frames of brood and 5 frames of honey, which should have been in sections. I have got in our apiary, with the same attention, more comb honey from Simplicity hives with 7 wide frames than I have ever got from a two-story eight-frame or nine or eight frame brood-chamber with T supers. I am now running my eight-frame hives three and four story for extracted honey. This is in answer to a footnote, page 794, Oct. 15.

Sarasota, Fla., Oct. 24.

[These are facts that we want: but don't stop here—we want more of them. The question of the size of hives is a very important one.—Ed.]

THE TEN FRAME COLONIES AHEAD OF THE EIGHT-FRAME.

I have been using the eight and ten frame hives side by side, half of each. I have kept record for three years, and my ten-frame hives are ahead. Three of my best ten-frame colonies gave me 100 lbs. each this year; three best eight-frame, only 60 lbs. The ten-frames have ten frames full below, and the others only eight. I use half-depth frames on all my hives for extracted honey. I put them on early in the spring, then when well started I raise them up and put sections under. This is the only method by which I can secure any honey. This has been a great year for swarming here, yet I have had only six swarms from 30 colonies by this plan. C. S. Nevins.

Wagstaff, Kan., Oct. 6.

[This is the kind of evidence we want. It is these comparative tests that are worth bushels of theory.—Ed.]

THAT BIGGEST BEE-KEEPER IN MICHIGAN.

CROP THIS YEAR 20,000 LBS., AND NOT A POOR SEASON IN 18 YEARS.

By B. Walker.

I want to tell you I have been very much interested in the accounts given by the junior editor of Gleanings of his visits to some of the leading bee-keepers of our State. I have enjoyed them all the more as they are all personal friends of mine, and none the less if they have not cut much figure as honey-producers of late years.

That description of the biggest sawmill in the State wasn't so bad, either, for a *mere boy;* but then, big sawmills are so numerous here in Northern Michigan, and big bee-keepers so scarce, that I did not care so much for that; but just the same we have one big bee-keeper here—the biggest one in the State, if I am correct, who keeps nearly 350 colonies in seven different yards, and who raised over 20,000 lbs. of honey this season, and who has not failed of getting a good crop for 18 years past. This chap lives not far south of Cadillac, at a place called Evart, on the direct route from Flint to Manistee; and as his apiaries are located chiefly at different stations close by the depots, his home yard being but a few rods from the station at Evart, the junior editor no doubt had less trouble in finding him than he did friend Hunt. Of course, I have been waiting with no little impatience for an account of his visit to this man, and a description of some of the apiaries and methods of this biggest bee-keeper—in fact, I can hardly wait for the next number of Gleanings.

Evart, Mich., Oct. 24.

[Now look here; you didn't give his name. On our subscription-list we find at that point B. Walker. Is it he? I did not know there was a bee-keeper anywhere in the State who was engaged so extensively in the business. I certainly should have called upon him, as I went right through the place. Well, now, I want to know more about him—anyhow his hive, his methods, and himself.

The writer of the sawmill article was a younger sister (not a boy), who wrote home an account of her visit to the mill, without any expectation that it would be published. When A. I. R. said he wanted it, she protested, but finally consented, with the understanding that her name should be omitted.—Ed.]

ANOTHER TREMENDOUSLY LARGE HONEY-YIELD.

AN AVERAGE OF 750 LBS. PER COLONY FROM 63, SPRING COUNT.

By H. Petersen.

Mr. Root:—Seeing that you mention my large yield of over 1200 lbs. for one hive in a single season, in July 1st Gleanings, I will give you my returns for the same season, 1891-'92—a very long and favorable one. Started in spring with 63 colonies; increased to 120, and extracted a little over 48,000 lbs. of honey—an average of 750 lbs. per colony, spring count. This is the highest average record in New South Wales, Australia. Has it been exceeded in any country where Gleanings circulates? My bees are Italians and hybrids, in 20-frame "long-idea" hives.

Wattle Flat, N. S. W., Aus., Sept. 8.

[This yield is indeed enormous, and, if I am correct, quite outstrips any other records. The figures, to those of us who have for a series of years had almost failures and small averages of ten and twenty-five pounds, seem incredible; and yet I have learned not to be surprised at any thing coming from a reliable source (as in this case) in warm climates, when modern methods and modern intelligence are applied. Now, I am sure there must have been other large yields—perhaps not so large—in your country, and we all of us in this country want to know more about it—the kind of hive used;

frames, etc.—not that we wish to emigrate to that favored paradise for the bee-keeper, but that we like to know what has been and can be done under the most favorable circumstances in the best season, in the most favored locality.

It may be well to mention that Mr. Pender, of Australia, who attended the World's Fair, reported at the North American, which he attended, some very large yields. In the light of these the report above may not seem so impossible of attainment after all, especially when we remember that, in some places in Australia, honey comes in the year round.—Ed.]

RAMBLE 120.

IN THE ZACA MOUNTAINS.

By Rambler.

If I were to divide the people of Los Alamos off into squads I would put one-fourth down as Americans, Dutch, etc.; one-fourth Spaniards, and one-half babies. It may seem remarkable that so many babies should be there to make up the population ; but when a big Spaniard and his wife present themselves and point with pride to their family of 24 children, and some of these older children married and emulating the example of their parents, the problem is not remarkable. When it became generally known that a photographic outfit was located near our friend the blacksmith we were besieged with much work, and enlivened with the squalls and wry faces of Spanish babies, some black and some white, and some of a mongrel hue. While the Rambler, with tired and befuddled brain, would try to focus the camera on one of the aforesaid urchins, of less than a week's growth, Wilder would catch a glimpse of another squad of dark-skinned women with towels over their heads, and then he would laugh and shout, " More babies ! " A further look on my part in the opposite direction would reveal another squad and more babies. It is needless to say, that my dreams for several nights were of red mouths, fists, and feet, all in juxtaposition. I could see no sense in Wilder's spatting his hands, and laughing about it, when it was such downright sober business. It was, therefore, a downright relief when Brother Hilton (may his shadow never grow less) proposed that we spend a day or two prospecting the honey capabilities of the Zaca Mountains. Mr. H. aroused our imaginations, and visions of elysian fields of honey-flora floated through our minds; and one morning, soon after the 4th of July, our ponies were attached to Mr. Hilton's wagon, and, with our camp-equipage, guns, etc., we set forth. Our party consisted of Mr. Hilton and his seven-year-old daughter Frances; Mr. Wilder, and myself. The three peaks of the Zaca Mountains loomed up against the sky in the blue distance, about twenty miles ahead of us. During our journey Mr. H. amused himself by pointing out the various things of interest on the way, and we discoursed fraternally in relation to bee culture and its delights. All along the route, whenever we passed through oak-groves we found the busy bees at work amid their branches in great numbers. We were curious to find out what they could find in oak-trees at that time of the year, and proceeded, as a committee of the whole, to investigate. Our examination revealed the source of honey. The little acorns that were just forming had been stung or punctured by some kind of insect, an egg deposited, a little worm hatched, and a sweet juice exud-

ZACA LAKE.

ed from the wound, and this was what the bees were so busily at work upon. As it exuded enough to drop upon the leaves, I suppose the liquid must be called honey-dew, or something akin to it. Mr. H. assured us that the bees gathered much honey from this source, and that it was not of a bad quality. No civilized bees were kept in the wild country through which we were passing. The multitude of bees, therefore, were from the trees and rocks.

The canyon we soon entered, and through which we wound our way, was wild and hemmed in by tall mountains; but not more so. perhaps, than what we had seen in other places, and especially in the Sespe region.

HILTON AND WILDER BRINGING IN THE GAME.

Our load weighed rather heavily upon our ponies; and when we came to the final two-mile grade, about as steep as the roof of a gothic house, we camped for the night. Frances was tucked up warmly in one corner of the tent; Mr. Wilder rolled himself in his blanket, under a tree, while Mr. H. and I sought the remaining corners of the tent.

The next morning, leaving our ponies tethered in a little spot of wild oats, which are plentiful here, we climbed the steep grade. Frances partly climbed and partly clung to her papa; and, on account of the heat, we often rested. In time, however, we reached our destination—Zaca Lake — a fine sheet of water several acres in extent, just under those three peaks, and several thousand feet above the level of the sea. This little lake, perched so high above the surrounding country, is considered a great curiosity in the region, and is becoming quite a summer resort, in spite of the rugged climb to get to it. We found here the lone cabin of a frog-eating Frenchman. I do not say "frog-eating" out of any disrespect to the French, but because Mr. H. said that this man did eat frogs; and the remains of many of the succulent silurian monsters were visible around the cabin. It seemed to be a healthful climate for frogs, except when the Frenchman was around, for we saw some of aldermanic size. A ramble around the lake, a photograph or two. a sail on its placid waters, and a peep into its clear and unfathomed depths, and we were ready to return to camp. Frances enjoyed a ride down on her papa's shoulders. and, owing to the uncertain foothold, we occasionally made ourselves into sleds in an undignified way, much against our wills, and that's the way we and Frances came down.

We found much honey flora that was new to us, and plenty of bees at work. Mr. H. spent a short time trying to find a bee-tree, but did not succeed, though they must be plentiful here.

Mr. Hilton had been telling me that he knew of a good bee and honey range that would just suit me; and here in this wild spot, with mountains rising upon all sides of us, Mr. H. enthusiastically exclaimed, "Here, Mr. Rambler, is the place for you." It was certainly retired enough, and the bees would have an easy flight to the hives. All they would have to do would be to fold their wings and drop; but the purling stream I was looking for was not large enough, and I told Mr. H. that I would look further.

In the early morning, while Mr. H., Frances, and I, were climbing to the lake, Mr. Wilder went on a deer-hunt, but returned, as usual, empty-handed, saying that he saw only signs. I began to have a downright disrespect for his deer-hunting qualities; and he had come in so many times from an arduous early-morning climb, with his signs story, that I had a private smile up my sleeve every time.

We concluded that the journey for our ponies would be much easier if we moved our camp toward the mouth of the canyon, and we accordingly traveled down several miles and camped again under one of those noble broad-spreading live-oaks. Mr. Wilder rolled himself in his blanket again, and slept under the wagon, while the rest of us sought the tent. In the "wee sma' hours" of the night the sharp report of a rifle aroused us, and, upon inquiry, Mr. Wilder informed us that a fox had tried to appropriate our provisions. The fox escaped, and left the usual "signs" of being around.

Mr. Wilder's mind, however, on deer was bent; and ere the morning gray had streaked the east, a hasty morsel of food he snatched, and was away to the mountains. Mr. Hilton, Frances, and the rest of us, arose when so inclined, and prepared our breakfast of good things. While we were stowing it away we heard the sharp report of the rifle, far up the mountain. Soon another bang, then another.

"Signs of deer," said I, with a sardonic grin.

"Yes," said Mr. H., "signs of deer."

In the course of an hour Mr. Wilder returned to camp, calm and collected.

"Signs of deer?" said I.

"Yes," said he, "signs of deer."

He sat down and filled the inner man, and then invited us to help him bring in his game—a deer.

"Why, Wilder, you're joking. It was only signs, wasn't it?"

"Mr. Rambler," said he, "it is a deer this time."

I believed him immediately, for he said it with a sort of George Washington I-can't-lie manner that carried conviction. Mr. H. and I followed him about half a mile up the canyon, and there was the defunct deer, sure enough. My sardonic smile up the sleeve did not fit that morning, and I threw it away, and have not indulged in one since. The deer was duly photographed, and all parties concerned are true to life. It was duly dressed, and taken to town; and for several days we lived on venison. My partner rose several degrees, as a deer-hunter, in the estimation of Mr. H. and the Rambler.

CALIFORNIA ECHOES.

By Rambler.

Mr. J. Hilton, of Los Alamos, has an apiary for sale. He also mentions Spanish señoritas. Please excuse the Rambler, Mr. Hilton. I will turn the field over to some gushing tenderfoot. Those señoritas are very pretty, though.

Which have the longest tongues—Carniolans or Italians? Mr. Wilder says the Italians have. His experience is first-class, for he has had more picture talk with Italian women than any other person of my acquaintance. Their tongues were always too much for him.

"The bees of Brazil hang their combs outside on branches of trees, at the very summit, and at the ends of slender twigs, to be out of the way of monkeys, which are very fond of honey." The above is a clear case of education in the race of bees, where some claim there is none.

There is also a good round story about a Florida colony securing 550 lbs. of honey in one season. I believe it. But when we hear that a colony has produced 1000 lbs. in one season, our credulity is stretched as tight as a fiddle-string. If the fellow had added just one pound more I would have jumped up and shouted, "It's a lie."

The California woodpecker may be called an educated bird. He first drills a hole in the bark of a tree, large enough to accommodate an acorn. He then gets his acorn, always a defective one, or one in which is an embryo grub, and inserts it in the hole. In due time the grub becomes a luscious morsel, and the woodpecker is on hand for his feast.

Now, editor Ernest, when you are out on a wheel again, and want to find Bell Branch or the other town, don't inquire of a dude hotel clerk. They know but little outside the four walls of their little office. Just ask my friend the blacksmith. He will set you right every time. The next best place is a livery-stable keeper. Here in California my friend the blacksmith is posted on roads for a hundred miles in all directions.

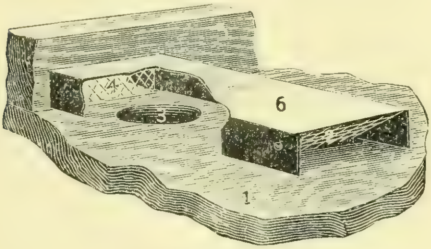
A writer in the *A. B. J.* says bees get fat and lazy, and that, too, during a dearth of honey. A California man told me that his bees become poor, scrawny, and lazy, just like his cattle, when the feed was short. The latter doctor, whose opinion is opposed to the former, could neither read nor write. His wife was obliged to help him in those accomplishments. I put but little faith in his assertion, and in like manner whether the *A. B. J.* correspondent does his writing himself or by proxy. I don't believe his assertion. I don't believe bees ever get fat or poor.

THE STAMPEDE BEE-ESCAPE.

By C. W. Dayton.

[The following is from the *Bee-keepers' Review* for September. My own comments appear at the end.—Ed.]

Friend H.:—I send you by this mail a model of my bee-escape. No. 1 is a section of the escape-board proper. No. 2 is a gate of wire cloth hinged at its upper edge, and under which the bees pass in their efforts to reach the opening (4), toward which they are drawn by the light coming in. By the time they reach the screen through which the light comes, they discover a more satisfactory route (No. 3) to the brood-nest. No. 5 is the raised rim around the escape-board. No. 6 is the escape proper, made of tin, a portion of which is cut away to show openings 3 and 4.



THE STAMPEDE BEE-ESCAPE.

The escape rests on the top side of the escape-board, instead of being let down into it. This renders the screened window discernible from all points of the board, however distant. In my experiments I have found that they go through the escape rather than an open outside exit. In the case of an outside exit the first uneasy bees, after coming to the outside, return inside again, and it is not until they become *very* uneasy that they dare take wing or course down to the entrance on the outside surface of super and hive. The first attempt to reach the window results in such bee being *trapped* out of the super, and obliged to proceed toward the brood-chamber. Thus in this escape it is trap first and strange passage afterward, instead of strange passage first and trap last. After securing it to the board, adjust the points of wires so as to nearly admit a bee by bending a wire, at the rear part of the gate, against the roof. As the floor is uneven it makes no difference if returning bees climb on top of the gate. I have cleared 200 supers this season with this escape.

Having the exit partially open is the turning-point in the success or failure of all escapes, and in the neglect of which many cast escapes aside. If you wish the escape to operate very fine, ravel out front lateral wires to within two wires of spindle wire. It requires about as much experience to operate escapes as it does in the spreading of brood. An escape with a window to admit outside light will operate the best from morning until about three or four o'clock in the afternoon. But toward nightfall, bees will retreat from the light, so that, to do the most rapid work, the exit ought to be farthest from the window. This point was suggested and found true from the hiving of swarms with a lantern or by moonlight. If the empty hive be placed on the moon side, as the bees are placed before it, they do well if they do not leave it entirely and retreat away toward the darkness. Place the hive on the dark side, and they retreat from the moon right into it. So the moon exerts an influence on the hiving of bees, and, possibly, the operation of escapes, so to say.

With the gate at the inside end of inclosed dark passage, robbers will not be caught. This season, even in the height of the harvest, I found a band of robbers prying around supers after the bees went out. I removed the super, but allowed escape and board to remain on the hive. When a robber approached the gate, and, seeing the light at the other end, it thought it had discovered plunder, and instantly jumped under gate. Result, dead robbers dragged out at entrance of hive below.

Oh, yes! my advertisement states that 1000 bees per minute may go through. These are three inches long, a gate on each side of the auger-hole. The capacity of escape I send is 500 to 700. After adjusting escape, spread carbolized cloth (prepared *a la* Woodley) over top of frames, and put cover down upon it. They will stampede.

Florence, Cal. C. W. Dayton.

[Mr. Dayton's escape, theoretically, looks like a good one. It combines very nicely the flood-gate principle of the old original that Mr. Pouder introduced some ten or twelve years ago, and the going-toward-the-light idea of the Boardman, also introduced at an early date. The first mentioned consisted of a sort of gate, or rake, the teeth of which were common pins, the whole hinged at the top so that the bees could pass under the pin-points one way but not the other. Mr. Boardman, as some of our readers know, has long used a cone bee-escape; but instead of having it placed *between* the super and brood-chamber, he insists that the proper place is in front of the super on the *outside*, and just over the hive-entrance. The bees go toward the light, pass outdoors, and, if there are any young bees, they will crawl down the hive-front into the entrance. As thus situated, Mr. Boardman claims that it is much more rapid in its operation. In the maintenance of this position he has stood practically alone. But Mr. Dayton, independently and without this knowledge, as I judge, of Boardman's escape, or, rather, its position, has gotten hold of the same idea (toward the light) and so arranged the escape that it lets the bees into the hive. Occasionally robbers, Mr. Boardman says, would bother the outside escapes.

I should like to see reports from others who may have tried the Dayton, as to how fast it works compared to others.—Ed.]

SASSAFRAS AS A VERMIFUGE.

WILL IT KEEP ANTS AWAY FROM HONEY, ETC.?

By A. P. W.

Some years ago I dried a quantity of strawberries in sugar, and, after putting them away with the greatest care, my disgust was extreme when, upon opening them, I found worms here and there among them. At first I regarded the case as hopeless; but having seen it asserted, over and over again in print, that the bark of sassafras root would keep worms out of dried fruit, and living, at the time, in Southern New Jersey, where sassafras is, to say the least, abundant, I determined to try it. Having carefully picked over the fruit, heated it again in the oven, and divided it into two separate lots, into one I put sassafras bark, mixing it through the fruit here and there; but into the other I did not put any. To all appearances both lots were exactly alike when I put them away as carefully as before. The one with the bark in it remained perfectly free from worms until all used; but the other lot, in a little while, became infested again, and was finally destroyed. Since then I have repeatedly used sassafras bark, and think I am safe in saying that the little moth that lays the eggs from which the worms come will not go where sassafras is.

Now, since I have been a GLEANINGS reader, and have seen so much about the troublesome worms in honey-comb, I have wondered if there could not be a way devised to use it to advantage in protecting comb from the visits of the bee-moth. Since my experiment with the fruit I have come to live where it is not easy to obtain sassafras *bark*, so I now use the *oil*, which is cheap, and to be had at all drugstores. I know bees do not dislike the odor of the oil, because, two years ago, we put it on a hive in various places, front and back, to drive out large ants that were troubling one colony, and the bees paid no attention to it. Large ants seem to have a great aversion to it, and I have three times, in the last ten years, routed them from my pantry and kitchen cupboard with it. Little red ants, and small black ones too, flee from it. If the little red ants that are sometimes so troublesome make their appearance, I drop a little sassafras oil on bits of muslin, and lay it wherever they are, and they leave. Cinnamon oil, or ground cinnamon, if it is pure, has the same effect.

THE KINGBIRD A DRONE-EATER.

I was glad to see the note in defense of the kingbird in GLEANINGS for Oct. 1, and your remarks upon it. About a year ago a writer told of killing the kingbirds and redbirds because, as he said, they destroyed his bees, and lived exclusively upon that kind of diet. I had been watching those two kinds of birds for some time, and had failed to see them catch a single bee, even when they had every opportunity; and then, too, I knew that the redbirds were *seed*-eaters, as we had family after family of them reared in our house yard, where they fed their young on melon-seeds thrown out for them, and on the oats left by my daughter's pet chickens.

[Sassafras may have been before suggested for the riddance of insect pests, but I do not now remember of it. I should be glad to get reports from others who have been similarly annoyed.—ED.]

BEE-PARALYSIS.

A WORSE SCOURGE IN SOME LOCALITIES THAN FOUL BROOD; ALL CURES TRIED, AND ALL A FAILURE; THE ONLY REMEDY WHERE IT IS EPIDEMIC IS COMPLETE DESTRUCTION OF THE WHOLE COLONY.

By T. S. Ford.

The idea that we both had, of killing off the black shiny bees in the hives affected by bee-paralysis, has been thoroughly tried by me this summer, and it has gone the way of the sulphur and the salt, and the requeening and the salicylic acid—the limbo of exploded remedies for this disease. I can not really believe that there is any cure of the disease, except spontaneous ones somehow worked out by nature's own processes, if it can be truthfully asserted that there are cures at all. I have seen some of my colonies, that were decimated in the spring, apparently get well when summer came on; but the shiny bees are now beginning to reappear in them all, even among those requeened with queens from the North, which I once thought could resist the disease.

In the light of what has lately been published as to Cheshire's discovery of the bacillus Gaytoni as being the origin of the malady, it seems doubtful whether there is any hope of cure. I know the infection is borne about on the body of the bee itself, as I have seen an apparently healthy queen from an infected hive carry the disease into an apiary hitherto wholly free from the trouble; and as I have seen the malady spread from an infected hive to all those close by in a short time. Now, foul brood can, it appears, be eliminated, because the bacillus develops only in the larvæ; and when the infected honey and infected combs and hives are gotten rid of, and the bees put into clean hives and on clean combs, the bacilli are all gotten rid of, and the malady eradicated, as appears from what is said of the methods of treatment that have been reported as successful. But reasoning on principle, what is to be expected of a disease propagated by mere contact, and where, after you have transferred the bees to clean combs and clean hives, as I have done, and fed them on sugar syrup for a while, and then transferred them again, yet after all there are the seeds of the disease in the shape of the bacillus lurking in the body of an infected bee or queen, that, under favorable conditions, propagates the infection anew?

It seems that we need the scientist, with his microscope, to take the matter in hand, and hunt the bacillus down thoroughly, and tell us whether the spores of this organism are preserved in the honey, and thus carried into the stomachs of the larvæ; also to let us know whether it lurks in the combs and on the walls of the hives. Then, and not till then, can the disease be treated scientifically.

But, after all, for one I utterly despair of any means that will exterminate the disease. Beyond all doubt it is infectious. My own experiments have satisfied me that it is infectious, and that the contagion is carried on the body of the insect. Now, granting that it is infectious, how can we get rid of the bacillus by any method short of the destruction of the individual that carries it about, and perhaps of his hive, honey, and combs, if they too contain spores of the bacillus?

Our doctors stop the spread of yellow fever by drawing a cordon of quarantine around the infected city. This being done, they do not physic the whole city at once, nor do they administer remedies to kill the yellow-fever germ in the sick person, because they know that any remedy that will kill the germ will kill the patient. May not this be true in the economy of the hive? We can not quarantine the infected bee against his fellows, of course, nor can we quarantine the infected colony against the robbers from other colonies. which, just at the time when the disease is most virulent, and has overpowered the sick community, rush in and sweep away the poison into their own homes.

The two articles of Mr. Getaz, of Tennessee, published in the *American Bee Journal* this year, and lately reproduced in the *Bee-keepers' Review*, have been read with great interest by me, as showing that bee-paralysis has become endemic in the neighborhood where he lives, doubtless by the very process above indicated. The same thing has happened, it appears, in California, I believe in San Bernardino Co., where it has destroyed thousands of colonies, according to the statement of Rambler, in Gleanings. Whatever may be the result of bee-paralysis in the North, it is in this climate a disease that is destructive to all prospects of honey production for profit; and it is my conviction that the only method of dealing with it is to promptly destroy every colony that shows infection, and thus stamp it out.

I have a criticism on the name that has been given to this disease, that I wish to submit. Bee-paralysis seems rather a misnomer to one who sees the disease in its last and most virulent stage, when the sick are seen crawling about with their bellies enormously distended. It looks then more like a dropsy; and when the subject voids an enormous quantity of thin yellow feces on the alighting-board, it looks as much like a diarrhea. That rare malady in the human subject once called "bronzed skin," when scientifically investigated, and traced to a degeneration of the suprarenal capsules, by Dr. Addison, was properly named Addison's disease. Chronic degeneration of the tissues of the kidneys, producing a multitude of symptoms, ending in death, is a disease that was investigated, and its true nature shown, by Dr. Bright, and very appropriately it has been termed Bright's disease. So I submit, that, because Miss Gayton called Cheshire's attention to the bacillus that caused our "nameless bee-disease," it might with more propriety be termed Gayton's disease.

For the benefit of those who buy queens, I think that the note of warning should be sounded, and that often, against buying of any breeder who has this disease in his apiary. How are the inexperienced to be protected against this danger?

Columbia, Miss., Oct. 27.

[Mr. Ford has been having a very large, not to say trying, experience with this trouble. I have had considerable correspondence with him, suggesting every thing that might in the least abate the malady. J. A. Golden, as well as Mr. Henry Alley, both felt sanguine that the salt remedy, if properly applied, would effect a cure, and at one time I was in hopes it would help him out; but if any one has tried salt faithfully, and found it wanting, I am sure Mr. Ford has. Nothing is able to stay its progress among his bees; but it should not be forgotten that the virulence of the disease is largely a matter of locality. While it was fearfully destructive—far more so than foul brood—in Mr. Ford's locality, in parts of California and other warm climates, it is as nothing in the North or colder climates. But its very insignificance in the North makes it insidious and dangerous for the South. Why? The Northern queen-breeder, I am afraid, does not always realize how dangerous a mild case of palsied or swelled bees may be when the queen of said bees is sent to the South. *No queen-breeder, at least who advertises and sells queens, should allow a case of bee-paralysis to remain in his yard one day after its discovery. The bees ought to be entirely destroyed, even though the case will apparently cure itself, which in many cases it will do in his own yard.*

It is positively settled now, that the queen can and does transmit the disease; yes, she can carry it several thousand miles, from a locality where it can do no harm, to one where it will do fearful mischief in an apiary.

Mr. Ford suggests the inappropriateness of "Bee Paralysis" as designating this peculiar disease. It is far better than "nameless bee-disease," and, in some of the symptoms, paralysis seems to cover it fairly. I should question the wisdom of trying to change the name after the hard time we had in trying to introduce its present name. It was suggested by Prof. Cook, and was by us and others subsequently adopted. Miss Gayton did not first call attention to the disease. We had it in our apiary as early as 1877, and this was long before Cheshire knew much about bees.

Dr. Howard, the one who wrote that admirable work on foul brood, and a scientist of no mean order, and a microscopist, is about to turn his attention to it. I shall await his investigations with interest.—Ed.]

ILLINOIS STATISTICS.

REPORT FOR SEPTEMBER AND OCTOBER OF THE MEMBERS OF THE ILLINOIS STATE BEE-KEEPERS' ASSOCIATION, SO FAR AS HEARD FROM TO DATE.

The answers given correspond to the following questions by number:

1. How many colonies have you?
2. What are the prospects for a honey crop?

3. How much honey gathered to date?

4. Is the honey gathered No. 1 or not?

Thos. B. Allen, Stirrup Grove, Ill. 1. 31; 2. No white clover; not good; 3. About 36 lbs.; 4. Not very good.

A. B. Anthony, Coleta, Ill. 1. 26; 2. All right for next year; 3. 300 lbs. comb, 400 lbs. extracted; 4. No. 1.

F. X. Arnold, Deer Plain, Ill. 1, 102; 2. The crop is over; 3. About 3300; 4. $\frac{1}{3}$ honey-dew, the remainder from fall flowers.

C. M. Beall, Clayton, Ill. 1. 8; 2. Enough to winter on; 3. None.

Peter Blunier, Roanoke, Ill. 1. 52; 2. With me the season is past; 3. No surplus; about enough to winter on; 4. Rather dark.

Jas. Bertrand, Bristol, Ill. 1. 12; 2. Fair for next year; 3. 180 lbs.; average 15 lbs. per colony; 4. No. 1; amber, mostly sweet clover and alsike.

M. Bevier, Bradford, Ill. 1. 40; 2. Very poor; 3. Total 90 lbs.; 4. Dark.

S. N. Black, Clayton, Ill. 1. 30; 2. Bees will require feed for winter; 3. No honey gathered.

C. Covell, Buda, Ill. 1. 35; 2. Fair, as the red clover furnished honey this season; 3. Nearly 1500 lbs. surplus; 4. Very good; amber, being basswood and red clover mixed.

Dadant & Son, Hamilton, Ill. 1. 350; 2. None; 3. None; 4. Have not harvested enough to make up for feed that we have to give.

Peter Dahl, Granville, Ill. 1, 135; 2. None; 3. 300 or 400 lbs.; 4. No. 1.

P. J. England, Fancy Prairie, Ill. 1. 28; 2. Bees adding slowly to their stores; 3. 600 lbs. extracted; 4. A shade below No. 1.

J. D. Everett, Oak Park, Ill. 1. 30; 2. Good; 3. 900 lbs.; 4. Yes.

E. T. Flanagan, Belleville, Ill. 1. 250; 2. None; all over now; 3. 2500; 4. No. 1 fall.

J. M. Hambaugh, Spring, Ill. 1. 120; 2. Honey crop all in for this year; 3. Will be in the region of 7500 lbs.; 4 $\frac{1}{3}$ poor; balance fair; no gilt edge.

B. W. Hayek, Quincy, Ill. 1. 97; 2. Fall season so far, Sept. 27, good; 3. 2500 lbs., expect 1000 lbs. more; 4. No. 1, amber.

Wm. Little, Marissa, Ill. 1. 60; 2. Season past; 3. 600 lbs.; 4. Have abundant stores to winter on.

Dr. C. C. Miller, Marengo, Ill. 1. About 200; 2. Nix; 3. 20; 4. No.

Adam Phelps, Springfield, Ill. 1. 10; 2. None at all; 3. None; 4. Answered above.

Geo. Poindexter, Kenney, Ill. 1. 73; 2. About $\frac{1}{4}$; 3. 250 lbs. heartsease; 4. No. 1.

Jas. Poindexter, Bloomington, Ill. 1. 160; 2. All vanished; 3. No surplus; enough by strong colonies to winter on; 4. No. 1; heartsease mostly.

Daniel E. Robbins, Payson, Ill. 1. 30; 2. None; 3. 225 lbs. basswood; 4. Very nice, as I left the honey-dew in the hives.

Geo. F. Robbins, Mechanicsburg, Ill. 1. 64; 2. Rather late to prospect; 3. Get out! 4. What! the only complete failure I have ever known in my 12 years of bee-keeping.

F. A. Snell, Milledgeville, Ill. 1. 112; 2. Honey-flow over; 3. 1500 lbs.; 4. Very good.

P. E. Vandenburg, Jerseyville, Ill. 1. 37; 2. Very poor; 3. About 100 lbs. extracted; 4. No, not what I call No. 1.

Walter M. VanMeter, Era, Tex. 1. 7; 2. Prospects light; 3. 50 lbs.; 4. Honey very good.

F. C. Vibert, Hockanum, Conn. 1. 7; 2. Poor; reasons given in July report; 3. 28 lbs.; 4. No. 1.

E. Whittlesey, Pecatonica, Ill. 1. 70; 2. The season is past; 3. 100 lbs. all told; 4. Third grade.

Bradfordton, Ill., Oct. 26.

YELLOW BEES TOO TENDER.

I have given a fair test, side by side with my dark Italians, and I am well satisfied that they are too tender for our climate, latitude 42. They may be all right farther south.

Allen, Mich., May 19. C. H. AUSTIN.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

HALF-DEPTH FRAMES FOR EXTRACTING.

Question.—I worked two colonies of bees the past season, for extracted honey, using the full-depth Langstroth frame in the upper stories. These frames were filled half full of light honey and half with dark honey, the light being in the upper part of each frame and the dark in the lower part. What I wish to know is, if I were to use half-depth frames could I secure the light honey in the upper set and the dark in the lower ones? If so, it would save mixing the honey when extracting, as was the case the past season, for I could not extract the light honey without having the dark all mixed with it.

Answer.—I very much doubt your ever having an experience again similar to the one outlined above, as seasons vary so much. Indeed, I hardly see how you could have had such a result this year; for in all my experience I never saw a whole set of frames that were evenly half filled with white and dark honey. It is no rare occurrence to have one or two frames filled so that, practically speaking, they would be half filled with white honey and half with dark; but to have the whole upper story thus filled is something that does not happen more than once in a lifetime. Half-depth frames are recommended by some of our most practical bee-keepers for upper stories for extracting; but I never heard any claim as coming from them that the light and dark honey could be kept separate by using such frames. Some years we have a large yield of white honey with little if any dark honey; other years just the reverse of this is the case; hence it will be seen that the supposition hinted at by the questioner could not possibly come to pass in such years; for when white honey was abundant the bees would use nearly all the room furnished, in storing white honey, finishing out the very bottom parts of the combs with dark. When there was a light yield of white honey with a good yield of dark, just the reverse would be the case; namely, there would be a small quantity of white honey in the upper part of the upper half-depth frames, while the rest of said frames would be filled with dark honey, and all of the lower ones. The only way that I know of to avoid mixed honey is, to either extract all of the white honey as soon as the white-honey harvest is over, putting back the frames of comb for the bees to use during the dark-honey flow, or take away the frames of white honey at the end of the white-honey flow, and substitute other frames in their places. Where one has the time that can be spared for extracting in the summer, the former is the preferable plan, as it requires a less investment in frames of comb, together with less storage room and handling of frames; but where time is of great value during the summer months, and of little value at other times, it may pay to adopt the latter plan. In either case the white honey should be left on the hive as long as possible, taking it off just as the dark honey is beginning to appear, so that it may be as thoroughly ripened as possible without being mixed with the dark.

WINTERING BEES WHERE SNOW DRIFTS.

Question.—We have twenty colonies of bees in chaff hives which stand where the snow drifts badly. Would it do to put them in a room during winter? or could we fix a shelter over them where they are, moving them together under this shelter? or could we set up a shelter in front of each hive and let the snow drift over hive, shelter, and all?

Answer.—If the room spoken of in the first question is an underground room or cellar, then I should say move the bees into this cellar during winter, providing an even temperature of from 42 to 48° could be maintained; for I have the best of success in wintering bees in my bee-cellar, and in this the temperature stands at from 43 to 45°. A part of my bees are in chaff hives and a part in single-walled hives, and I find that the chaff hives winter fully as well in the cellar as do the others. The only disadvantage chaff hives have for cellar wintering lies in their extra weight and the room they take up in the cellar; but these disadvantages are more than overcome by the advantage they possess during the cool and cold weather coming in the fall before they are set in the cellar, and in the spring after they are set on their stands. A spring wheelbarrow overcomes the difficulty of carrying chaff hives, while the packing of one hive on top of the other to the ceiling of the cellar overcomes the lack of room, in a measure.

If the room spoken of is to be a room above ground, with no special provision made so the temperature can be controlled at about 45°, then I should say try almost any other way of wintering than in a room with an ungovernable temperature; for where the temperature in any room goes below the freezing-point, and remains thus for weeks, and during a warm spell rises to 50° or more, bees are almost sure to perish before spring arrives. Moving the bees together under a shelter might answer, providing they can have a chance to fly during warm days in winter; still, there is much work to this process, and, worse still, many bees are liable to be lost or become badly mixed up when the hives are placed back where they are wanted during the summer, after having been thus wintered. The plan of having a shelter over the entrance of each hive, and letting shelter and hive drift over, I have tried several times; but with me it is not a success. Several of our best apiarists claim that this plan is a success with them, and advise the wintering of bees in this way; but I have yet to see the colony of bees, over which the snow has been drifted three months, that has not become uneasy, gone to breeding, contracted the diarrhea, and exhausted its vitality to an extent sufficient to cause a bad case of spring dwindling, or a loss of the colony altogether. After a process of time the bees seem to become too warm, break the cluster, commence brood-rearing to replace the bees dying of exhausted vitality, run to the entrance, and fan there as in summer, the commotion thawing the snow all about the hive till a cat or small dog could run all around the lower part of the hive, this causing them to consume their stores of honey and pollen very rapidly, which consumption brings on diarrhea and death, unless the bees have a chance to fly about the time brood-rearing commences, and even then the colony is so weakened that it is of little use the following season. Where the snow stays about the hives only a few weeks at a time, it will do no particular harm; but otherwise I would advise carrying the bees to some higher ground, where the snow does not drift, or else fix an underground cellar to winter in.

Heads of Grain, from Different Fields.

COAL TAR FOR MAKING FEEDERS TIGHT.

Dr. Miller, in Stray Straws, wishes to know what is best to make water-tight the inside corners of feeders. Well, doctor, try coal-tar boiled down a half, and poured in hot. If that doesn't do it, I will send you a lump of our adobe mud, which is warranted to stick.

Oakland, Cal., Oct. 22. P. L. Norton.

GALVANIZED-IRON UTENSILS ALL RIGHT FOR HONEY AND OTHER PURPOSES.

You ask about the experience of those using galvanized iron. I have used buckets, also cans, that would hold 20 gallons. I have two water-buckets that have been in use 15 years. When new the water tastes slightly of the zinc. The utensils are very handy about sorghum-making. I left some partly boiled juice in a bucket a few days. It fermented, and ate the zinc off from the inside. So you see it will not do to leave acid in it. J. P. Morey.

Neosho, Kan.

HOW MUCH GAIN IS THERE IN USING SEPARATORS?

Dr. C. C. Miller would be a good man to answer this, as I am using the same T super he is, but without separators, as I find my sections are spread out the full thickness of the sections, making 1¼ lbs. in some. My T supers are made to hold just 24 sections without separators; and if I use separators I shall have to make a change as much wider as five separators are.

W. L. RICHMOND.

Lexington, Ky., Aug. 7, 1894.

[I submitted the matter to Dr. Miller, who replies:]

You yourself mention one of the best reasons for having separators—with them your sections will be more nearly uniform in weight. If you pack for shipping, separators give you sections that will fit anywhere. Most markets prefer sections under a pound. My supers are probably the same size as yours. I now use 1⅞ sections with separators, a ⅜-inch follower, and a stick ½ x ¼ to wedge up with. I think you would like it. C. C. M.

COCOONS IN A CELL; THE THICKENING AT THE BOTTOM.

In the August 1st issue you say that you never saw more than from 4 to 6 cocoons in a cell. I presume that is about all that can be found at the sides; but I should like to know what the solid body found in the bottoms of the cells is if not an accumulation of these cocoons. I inclose a sample from old comb one inch thick. O. H. TOWNSEND.

Alamo, Mich., Aug. 13.

[The extra thickening at the bottom of the cells is partly made up of cast-off larva-skins, and dried food covered up by the skins, if I am correct.—ED.]

GERMAN, OR BELGIAN, HARES.

These differ from the common English rabbits, having tough skins and erect long ears. Their meat is white, and of a nutty flavor, and preferred by many to chicken. Their color is a silver gray. They are easily raised in hutches about three feet square, and, in fact, do well in confinement. They thrive well in summer on almost any green feed, such as clover, dandelion, dock, lettuce, beet-tops, turnip, cabbage, etc. They will fatten on stale bread, crackers, and all kinds of grain. Their principal feed in winter is clover hay. They breed every six weeks, having from seven to eleven at a litter. One doe and one buck will produce more pounds of meat in one season than one ewe, allowing her to have twins. Bee-keepers as well as others can do well raising them for market, as they sell readily in the game season.

G. J. FLANSBURGH.

South Bethlehem, N. Y.

THE ENLARGED REPORT OF THE ONTARIO BEE-KEEPERS' ASSOCIATION.

Having seen various versions in connection with the last report of the Ontario Bee-keepers' Association, permit me to state the facts of the case in justice to all. A number were dissatisfied about the meager report of the association. Compared with the government report of other organizations it was a reflection, and gave the impression that the bee-keeping industry was a very small affair. Mr. S. T. Pettit, Belmont, Ontario, took care to compare the size with that of other associations, and intended to bring the matter before the association, insisting upon arrangements in that direction. Mr. Pettit, after careful reflection, thought he would mention his plans to others, and secure their coöperation, to avoid unpleasantness of any kind. This gentleman, instead of allowing Mr. Pettit to carry out the work which he had taken in hand, took advantage of the first opportunity and made the necessary proposition without giving Mr. Pettit any credit. In justice to all, kindly make the correction, and give credit where credit is due.

Brantford, Ont. R. F. HOLTERMANN.

WHEREIN THE CHIEF VALUE OF FOUNDATION LIES.

As the use and kind of foundation is up for discussion, I will give my view of it. My theory is, that the *chief* value of foundation does not lie in the fact that it saves the bees the expenditure necessary to produce the amount of wax in foundation, but in the fact that it furnishes *all* hands with *standing-room to work into comb the wax scales already present* in abundance. If as many bees could work in building the *septum*, where no foundation is given, as can work in building the *side-walls* where foundation is given, the advantage of using full sheets of foundation would, in an average honey-flow, be very largely reduced. But as, at the very start, only a few bees can work at the septum, compared with the number that can go to work at once on the side walls, where full sheets of foundation are used, the advantage of such full sheets ought to be apparent. JOHN S. CALLBREATH.

Rock Rift, N. Y.

A CORRECTION.

In my article on foul brood, Oct. 15, I notice some errors, two of which call for correction. On p. 789, second column, the compositor makes me say that at Dresden some very old well-preserved honey had been found in the *eaves* of an old house, while I wrote "in the *caves*." In the same column, on p. 790, the same man lets the Swiss apiculturists say to themselves, "If the formic acid is powerful enough to kill the ferment of the *bee*, would it not?" etc., while I wrote "of the *beer*." CHAS. NORMAN.

St. Petersburg, Fla., Oct. 26.

[We are as glad to make these corrections as we are sorry the mistakes occurred. As we never heard of a *cave* to a house, we thought it must be *eaves*. Doubtless, if we could cut off the tail end of beer, or convert it to an *s*, the country would be better off. In next issue we give the first of three articles from Mr. Norman, and we shall do our utmost to have the wording correct. Sometimes a type breaks on the press, and thus changes the meaning. Some time ago a paper informed us that the Russian general Rakinoffikowsky was "found dead with a long word in his throat." The pressman had made *word* of *sword* by battering down the *s*.—ED.]

By E.R. Root
Editorial

On account of having a large amount of matter left over from last issue, I find it necessary to omit my own Bicycle Notes in this number.

The editors of the other bee-journals are having considerable sport at A. I. R.'s expense over what he saw at the St. Joseph museum. That is all right. May be he will have a chance to get even at some future convention.

MANAGEMENT VS. LOCATION.

It was decided at the St. Joseph convention that there is more in management than in races of bees or location. Obviously, bee-journals can not improve location. They may do a little in the way of betterment of races; but they can do very much in suggesting new and better manangement; hence no bee-keeper who keeps even but few colonies can afford to be without at least one good bee-journal.

A CORRECTION.

On page 846 of our last issue, about half way down the first column, there is a line that reads, "has the hardihood to *comment on* such a thing." It should read, "has the hardihood *to commend* such a thing." I did not mean, dear friends, to brag about my courage, you see. By referring to my manuscript I find I wrote *comment* very plainly, and the printers concluded I had omitted the word *on*, and supplied it themselves.

A. I. R.

Bro. York is getting up quite a reputation as a punster; but he is quite independent, and at the same time is quite willing to let other people have their own preferences. Here is what he has to say on the editorial *we* and *I:*

> Editor E. R. Root says in Gleanings: "Since I have discarded that editorial 'we,' somehow I feel more natural." Now, the "we" seems more "natural" to us. How funny it would be to use the "editorial I" in the *American Bee Journal!* "I" is sometimes egotistical, but "we" isn't. Now, there's a fine sentence—"I is" and "we isn't." But it's correct. Guess we'll stick to "we"—but let the "I's" have it, if they want it.

FOUL BROOD IN WAX.

In the *Review* for October 10, R. L. Taylor discusses the question as to whether foul brood can be transmitted through wax. He is confident that, if the wax be heated to a temperature of 212 degrees, all germs will be killed; but the trouble is, wax is melted and refined at a much lower degree of heat than that, and hence it may preserve its objectionable features. This season he made some foundation out of wax that was foul-broody last year, and put it into two hives on the 20th and 25th of July respectively. The colonies were examined frequently, but no sign of foul brood was found till the 8th of Oct., when one single cell of apparently foul-broody matter was found in each. If it does prove to be the real foul brood, it will disprove all theories to the contrary. In one hive the disease diminished greatly, without assistance; and Mr. Taylor is not sure but bees may recover from it unaided.

A NOTE TO QUEEN-BREEDERS.

I would call the special attention of queen-breeders to the article of T. S. Ford, in this number. It seems to me that all sensible and reliable queen-breeders will agree with the sentiment expressed in italic, in the footnote. Indeed, I should like to see a show of hands of those who will agree to destroy the first case of bee-paralysis that appears in their yard—hive, bees, and all, as soon as it is discovered. We will publish a short announcement of every one of you, to that effect; and if you can conscientiously say that you have never had bee-paralysis in your yard, say that also. If you really do not know what it is, while you are fortunate in never having had it you are laboring under the disadvantage of not knowing just exactly what it is, should it ever come.

IRREGULAR ADVERTISING.

There has been a good deal written in regard to advertising, but I think there is one point which has not as yet been fully emphasized; viz., that the advertiser must not be disappointed, nor blame any one, if he gets no return from one insertion of an advertisement, especially if he is a new man. We will say that Mr. A, for instance, orders one insertion of an advertisement, offering queens. He is a new man, and is apt to expect that, within four or five days after the appearance of his card, he will get a large number of responses; but he forgets that Mr. B., a well-known queen-breeder, offers queens just as cheap, just as good, and is *known* to be reliable. It is the most natural thing in the world for bee-keepers to buy of those who are well known. I do not mean to discourage one-insertion advertisements, but usually they do not pay unless some special inducement is offered in the way of extra quality, extra low price, or something novel, that everybody wants to see and get. But even then a plurality of insertions is far more liable to get better returns for the money invested.

WHY LARGE COLONIES; HAVE WE BEEN SHUTTING OUR EYES TO FACTS?

I can't help believing that the Dadants are right in their advocacy of large colonies, and that such colonies, as a general rule, will secure the most honey, will swarm but little, and require little if any feeding in the fall. But I don't think it necessarily follows that such a colony shall be all in one large hive, or, speaking more exactly, in one large single chamber, and on frames large enough to reach clear to the bottom and across said chamber. So far as I can remember now, the large-colony bee-keepers are more liable to get the honey, if there is any, than their neighbors with their small colonies. Witness, for example, the Dadants, the Frances, the Axtells, Elwood, Hetherington, Hoffman—large and successful bee-keepers, all with large colonies, but not all of them having those colonies in large single chambers. The Frances, besides their "shot-tower" hives, use three eight-frame Langstroth bodies for a colony. The senior France prefers the latter, because he can handle 'em in sections. Well, we often hear of the small-colony bee-keepers getting little or no honey; but do we hear of the other class being so often unfortunate? I tell you, brethren, *if* these are facts we are fools if we shut our eyes to 'em. I have read hundreds of reports that I haven't room to publish; I have visited many apiaries, as you know, over the country; I have watched the reports in other journals, and I have seen the better work of large colonies in our own yard, and I can't dodge the issue.

THE FIVE-BANDED STOCK AND ITS ORIGIN; IS THE TIDE TURNING AGAINST IT?

EDITOR QUIGLEY, in the *Progressive*, says that five-banded bees can not be produced from pure Italian queens; that the so-called five-banders come from a mixture of Cyprian and Italian blood, and then adds:

> This craze for yellow bees is ruining our industry, and the sooner it is stopped the better. We have been asked, "Who is to blame?" We say queen-breeders are, because they wanted to outdo their competitors by selling beautiful bees with more good qualities than their less colored sisters; but the more color, the more worthless they prove to be. Many of the breeders advertising five-banded bees have not a half-dozen colonies in their yard; and one breeder we know had but one colony, and shipped bees from the South each spring to commence with.

Mr. Doolittle and Mr. L. Hearn, I believe, both claim that their bees were bred from pure Italian stock. The question may arise, How do they *know* this to be true? I do not mean to say that it is *not* true; but I simply raise the point, that a very little Cyprian blood in Italian stock may not be apparent, and the bees would pass for pure Italians. Mr. Doolittle especially, it is to be assumed, would not make this mistake, and yet there is a possibility of it. At all events, the tide now seems to be turning rather against the five-banders. Too many of this stock have proved to be vicious, lacking in hardiness for winter, and are no better for honey-gathering than ordinary Italians. Incidentally, it may be remarked that these yellow bees were condemned at the St. Joseph convention.

It is true, some of them have shown their ability to gather honey; but individual colonies of almost any race of bees may be picked out that will be far ahead of the stocks around them.

THE DADANTS ON THE FOUNDATION QUESTION.

As will be seen from the following, I wrote to the Messrs. Dadant, asking for their opinion on the Taylor Experiments, knowing that they had studied the question years ago very thoroughly. Here is what C. P. says:

Friend Ernest:—It is with some reluctance that I respond to your request for my opinion on the Taylor experiments in favor of Given foundation, for I dislike any thing that looks like ax-grinding. The remarks that we had made on the Taylor experiment coincided with yours, and my father had called my attention to the fact that Taylor's tests agreed with tests made by us long ago; that is to say, that, the heavier the foundation furnished to the bees, the more readily they fill it with honey. This is very natural. The bees are always in a hurry when the crop is good, and they find it much handier to stretch out the cells which contain a great surplus of wax than to wait on the wax secretions of the wax-builders to finish up the rudiments of cells already begun. But one result, that we all know, of this fact, is, that the combs thus built contain too much wax to be pleasant to eat. But if we owe the heavier honey-combs to the heavier foundation, does it follow that we should use heavy foundation for surplus honey? and does not the better quality of the comb honey produced on light foundation make up for the less weight? Undoubtedly, if lighter combs are produced, more of them will be filled, and this will also make up for the difference.

The idea of friend Taylor, that the difference in the filling of the combs is due to the difference in quality of the wax, is not admissible. Aside from the fact that the samples on which he experimented came from experienced men, who surely know as well as he does how to render wax, the fact that the greatest difference exists among the combs built on Given foundation is sufficient to show that it is to the irregularity in the amount of wax in those sheets, and to nothing else, that the differences are due. It is evident, from this also, that the Given foundation is the least regular of all the grades tested.

Why is it so irregular? Because, instead of being rolled, it is pressed, and none of the imperfections of the sheet are laminated out. When the first praises of the Given press were published, we secured samples, and wrote over and over again to the manufacturer. Never did we see a full-size sample that could be called fair. The lubricant used, whatever it be, must of necessity remain on the sheet, and is an objection. The sheets made are always brittle, and, unless used at once, can not be handled without breaking. The shipping of this foundation, without its being more or less broken, is out of the question. When it was first invented, the press was lauded to the skies by Heddon and others; but they did not use it long. Why? They said it was because they could not get the foundation made right. Aye, there is the rub. An amateur can make a few pounds that will prove satisfactory; but show me the man who has made it in any large quantity and has given satisfaction. Hundreds of Given presses have been sold; and to-day, in spite of the praise the Given foundation has received, you can count its friends on your fingers.

C. P. DADANT.

Hamilton, Ill.

It seems that C. P. quite agrees with what I say on page 799, on the same question.

NOTES OF TRAVEL

BY A. I. ROOT.

THE NORTH AMERICAN BEE-KEEPERS' CONVENTION.

St. Joseph (of about 50,000 population) is not only a "city set on a hill," but on a succession of hills. It is a very clean, beautiful city; but many of the hills are so steep that, even though the streets are nicely paved, it is pretty hard work to run a wheel up some of them. President Abbott, true to his promise, gave us a very fine large hall. The attendence was not quite what we expected, especially of Missouri bee-keepers, but was altogether a very pleasant and profitable gathering. How could it be otherwise, with Dr. Miller, Hutchinson, York, Holtermann, Frank Benton, Dadant, Christopher Grimm, and others, including the representative editors of six different bee-journals? Pretty much all present reported either small crops or entire failure, in consequence of the severe drought that has been so widespread and general.

A good part of the first day was occupied in remodeling the constitution, a work that has long needed attention. A full report of the proceedings will be found in the *American Bee Journal*, and will also be furnished in pamphlet form by its editor, so I will not take space for it here. This session, like all its predecessors, has convinced me still more strongly of the great importance of keeping it up, and of making a considerable effort to attend. Even though the attendance be largely local, it is of great moment that such an organization be kept alive. At every session, matters of vast importance to the bee-keeping world are brought up and acted on, and work is done that could be done only by such a body as this. Old acquaintance was renewed, and new formed; and by meeting face to face we not only learned to understand each other better, but to mutually grow in faith, hope, and charity. I *know* that, in some cases, unkind feelings were swept away; and some who had been almost enemies bade each other adieu with feelings that had ripened, during those three days, into something very near to an abiding friendship. May the grace of God rest on and perfect the work that was started in St. Joseph. President Abbott proved a very efficient man, and his brief bursts of oratory, delivered in his own peculiar comic originality, will long be remembered by all who were present.

The mayor of the city, with the president of the Chamber of Commerce (who gave us the nice room free of charge), made speeches that were responded to by Dr. Miller and Mr. Holtermann; and during the evening sessions we were entertained by an address by T. B. Terry (who is employed by the State to give lectures at farmers' institutes), by various vocal and instrumental pieces from local talent; and last, but not least, the whole company were invited across the way to attend, *free of charge*, an exhibition of trained animals, including the talking seal, followed by a concert. Some of the boys indulged in a good deal of merriment because Dr. Miller, A. I. Root, and others were present at a concert in a *theater*. Well, boys, both the doctor and I would have been much better pleased had the beautiful woman who sang "sweet Marie" been attired in woman's dress, rather than in the fancy costume she chose. And the *man* who danced and kicked his heels so high, in *woman's* attire, we would have rather seen in the garb of his own sex. We are glad, however, it was a man, and *not* a woman who came before an audience to dance a "highland fling." Had we known the whole program beforehand, we should have excused ourselves before the finishing part. To tell the truth, however, we very much dislike to encourage, by our example, a fashion already too common, of running out and in during any kind of public exercises. Since that entertainment I have been a number of days with Terry, Abbott, and others, appointed by the State of Missouri, to conduct farmers' institutes; and the prevailing fashion of going out just because you don't like what is going on at the time is certainly one that should not be encouraged.

At the Bacon House, where most of the bee-keepers stopped in order to get reduced rates, we "doubled up;" and Dr. Miller, Hutchinson, York, and myself were all assigned to one room containing two beds. We had been having considerable sport, and kept it up, not only after we were in bed, but until we *should* have been asleep; and I laughed until the tears ran down my cheeks, and until I really felt sore. Now, it is a little singular; but, to tell the truth, it is only at these conventions, once a year, that I get to really feeling like a boy again. Again and again we all declared we must go to sleep; but Dr. Miller had learned to mimic the talking seal to such perfection that, just as we were losing consciousness, his "go out" would set us going again until we made our respective beds shake.

At the close of the convention some one remarked that we had the promise of a song from Dr. Miller, and we weren't going to disband without it. At this the president, with the utmost gravity, began, in the well-remembered language of the seal-trainer of the night before. Said he:

"Gentlemen and ladies, this wonderful seal has not yet been trained to obey always right off, but he usually does if we give him a little time."

This joke was received with a burst of applause; and when some one added, "Make him say 'go out,'" the audience just roared. Friend Abbott hereupon said, "Dr. Miller, stand up and say 'go out.'" When the doctor did so, mimicking the seal to perfection, the applause and laughter brought down the house. Let me explain that the talking seal speaks only the above two words. Some of you may remember the seals Mrs. Root and I saw climbing the rocks near San Francisco, and that they barked and played like a lot of puppies. Well, when they are at play they utter a peculiar double bark that might easily be imagined to be "go out." The manager explains to his listeners that the seal has no tongue, and can not speak as distinctly as we do; then he says:

"Now, Polly, sit up and tell the people what they will all do when our entertainment is over."

Polly winks her soft human-like eyes, looks very knowing, and, *with the above preface from her keeper*, everybody hears her say very distinctly, "Go out." Of course, there is a little tricking about the talking part; but aside from this, the intelligence of the animal is really wonderful. The manager says she has been taught entirely by kindness—no punishment and no scolding. He told us he had studied seals and other animals all his life, just as we bee-keepers had studied the habits of bees. Polly had just learned to play with a rubber ball; and when we came in, her keeper said:

"Come up here, Polly, and get acquainted with these friends."

She came part way, then stretched herself out in a lazy, indifferent sort of way.

"O Polly! what makes you so lazy? Come! come clear up here to me."

Now, a seal on dry land has very little power of locomotion; but the dumpy fat creature, perhaps three or four feet long, and nearly a foot through, by a peculiar bobbing motion came a little further.

"Oh! you don't half try. Come! You can get right up here if you try."

Polly winked her eyes in a lazy sort of way, and finally rolled herself over until her head came clear up against his hand; then she looked round at the visitors, and one could easily imagine a comical sort of smile on her face, such as a child might have when he had obeyed orders in *letter* but not in *spirit*. Seals are migratory, so we were told; and the great mass of fat they accumulate in the feeding season is to last them while they swim a thousand miles or more, entirely without food.

Kansas City, of nearly 150,000 population, was an astonishment to me. I did not know a city of such business, wealth, and progress, existed anywhere in the West. I was greatly astonished at their immense stores, with their hundreds of clerks; but when I found their little cash girls, from 8 to 12 years old, were kept there the year round, and did not go to school *at all*, I felt like making a protest. If the State of Missouri does not soon have some laws, such as we have in Ohio, making the education of her children *compulsory* she will surely regret it.

Saturday morning, Oct. 13, I expressed forward my extra clothing and started on my wheel-trip that I had so long looked forward to. Just as I had got well into my second wind, while about 10 miles out in the country climbing a hill, I heard an explosion like an old musket. I was so scared I nearly fell off the wheel; but when I got steady I found my back wheel running on its wooden rim. The tire had burst, both inner and outer tube, and I was forced to walk back to the street-car line. The driver said he would have to charge an "extra nickel" for carrying my wheel into Kansas City. What an illustration of the advantages of coöperation, or combining capital and labor! A farmer would want a couple of dollars, certain, to take me and my wheel into the city. The street-cars do it, and make it pay, for only 10 cts. They told me in the city that my 22-lb. racer was too light for the stony hills of Missouri; but they thought that, with a heavier tire on the back wheel, that takes most of my weight, I might make it go.

As the new tire had better not be used until Monday I prepared to go to La Cygne, Kan., by rail. At the ticket-office in the city they said there was a train out at 5 P.M. When I arrived as the depot, however, they said Saturday night was an exception, and that no train started until 9 o'clock. Four hours to wait for a train! I just couldn't stand the thought of it. My new tire seemed all right, and I thought I would ride a little way while I studied the matter over. The farther I rode, the better I liked it. Darkness came on, and I was in a strange land on an unknown road; but after awhile the moon came up, and then I made very good time. Ernest gave me very strong cautions about riding after night in Missouri and Kansas, where robbers and highwaymen were common; but I kept on. In the first place, my money was about all spent; my watch was only a Waterbury, and "Jesse James" or one of the "Dalton gang" would be sure to hand it back, saying, "Poor fellow," if they should overhaul me. Furthermore, how could anybody *catch* me unless he had a wheel too?

The worst encounter I had in my whole 25-mile ride by moonlight was a young lady, also riding a wheel. As she might be afraid of me, I said "good evening" in my most winning and assuring tones; and when she returned the salutation in a sweet, feminine, girlish voice, I breathed a long breath of relief, and very likely *she* did also.

At Olathe, Kansas, I had a grand good supper for only 15 cts. I noticed on the bill of fare, "Two eggs, cooked in any style, 5 cts." I thought this wonderfully low; but when they brought me *three* eggs for the 5 cts., instead of two, I asked the proprietor how he could be so liberal. His reply embraced a grand sermon, even though it was given in a few simple words. Here it is, so far as I can remember:

"Well, stranger, eggs are pretty low here just now, and I have always found it better in business to give a little *more* than you advertise, rather than a little *less*."

Dear friends, this number of GLEANINGS does not contain any "Homes" or any "Neighbors;" but I think the grand truth given in by that humble shopman in Olathe will do for both. "A good name is rather to be chosen than great riches."

When a man has a reputation of always doing *all* he agrees, and sometimes a little *more*, if he isn't rich he is *better* off than to be rich.

When I stepped off the train at La Cygne, Kan., one of the first things that attracted my attention was a boy so intoxicated that it took two other boys to hold him up. I asked them if that was the way they did things in Kansas, where, I understood, they did not have saloons. One of the three replied, "Why, you see, stranger, we are only eight miles from the Missouri line, and this young man goes over there on his wheel and gets his drink."

"But you don't mean, boys, that he came from Missouri, eight miles away, on a wheel, in *this* condition?"

"Well, he probably brought some of it along, and 'got full' after he got here. But he has learned the trade so he can run the wheel while he is pretty well 'set up.'"

If the above statement is true, it is not so bad a showing for Kansas, after all. When we can oblige a man to go eight miles for his drinks, or any other similar distance, we are greatly lessening the chances of his becoming a sot; and the incident is really a recommendation for the Kansas liquor-law, if it is true that the boys have to go over the Missouri line to get drunk. And now, then, can't our Missouri friends brace up and drive this kind of vice to some other State?

The town of La Cygne had quite a boon a few years ago, and real estate was a good deal higher than it is now. It is a splendid farming country all along the line between Kansas and Missouri; and in former years fruit has been raised in such quantities that it could hardly be disposed of. The frost last spring, however, cut off the greater part of the fruit in all this region. The damage was much greater than in Ohio, because the fruit was further along when frost came. At La Cygne, and all through Missouri, we found beautiful persimmons in great abundance. The trees hang so full they are really a sight to behold. The fruit has never been utilized very much, however, unless it is to make persimmon butter. When people want to boom the town of La Cygne they explain to you that the name is French, and that it means "a swan;" but if somebody gets mad, and wants to run the place down, he changes the translation to *goose*, going from the sublime to the ridiculous in one short " jump."

At the Sunday-school I was introduced to the superintendent, and I thought he seemed exceedingly cordial; and the young lady who led the Endeavor meeting seemed also to treat me as if I were an old acquaintance or an old friend. The superintendent finally explained matters by saying he formerly lived in York State, and for several years he assisted Mr. John H. Martin, then of Hartford, N. Y. While in friend Martin's employ he read GLEANINGS, and became quite well acquainted with A. I. Root. And this is to inform *Rambler* that one of his old helpers in his former home has found an abiding-place away down in La Cygne, Kan.

Monday morning I started off on my wheel for P. M. Francis, a bee-keeper who lives near Mulberry, Bates Co., Mo. Near the Kansas line I found considerable coal-mining operated by horse power. The horse was attached to a long sweep; and on the shaft, right over the horse, was a very large drum, around which a rope is coiled. This rope raises and lowers cars of coal from the mine. When the miners want to go down into the shaft, the horse goes one way; and when he pulls up a load of coal or workmen he turns around and goes the other way. By means of this cheap apparatus a great deal of coal-mining is done in this region, and. I should think, at a low rate, for I noticed shingles up by the roadside, reading, " Good coal at this mine, only 5 cts.," etc. I did not find out, however, how much was furnished for the low sum of five or six cents. Friend Francis has quite a plantation, 60 acres of apple-orchard, all kinds of stock, including thoroughbred horses, etc. When I got there the family were all away except the hired girl. Afterward a young lady called. I commenced trying to introduce myself, but she replied. "Oh! I know you, Mr. Root. I heard you talk at the Endeavor Society last evening."

I began to think that she had mistaken me for somebody else, but she explained, "Oh! I just came from La Cygne. I passed by you when you were mending your wheel, with a whole crowd of schoolchildren all around you."

It is true, I was obliged to stop about half way on my trip, to put a heavier tube in my back wheel. After that the tire stood up all right for more than 200 miles of stony, flinty, mountainous road through Missouri. Friend Francis has a foundation-mill, quite a stock of implements, and does something in the way of furnishing supplies, but, like most of the rest of the Missourians, he has done very little in the way of getting honey during the past season. Some time in the afternoon I started out again, and reached the pretty town of Archie, Cass Co., just about dusk. At the hotel I asked for water to drink and water to wash. I took a drink first, and found the water to be exceedingly hard, with a slight peculiar salty taste. I concluded that such water would not be very good to wash up with, and turned inquiringly to the boy.

"Oh! that water is all right to wash with, even if it *is* hard. You just try it."

I filled the basin, and took a piece of soap in my hand a little incredulously. To my great astonishment it made a beautiful suds, and removed the grease and oil on my fingers as well as any washing-fluid could have done. The water came from a well about 50 feet deep, right in the center of the town; and I was assured afterward, even by the women-folks, that this hard well water was better to wash with than the purest rain water. The mineral it contains seems to be something of the nature of borax. It really assists the soap to make the suds. The water has quite a reputation for its medicinal virtues, and has been sent off in bottles and barrels.

After I was washed up I made inquiries in regard to the farmers' institute to be held at Harrisonville, Cass Co. (10 miles off), next day. I went to all the stores, but there were no programs up, and nobody knew any thing about it. Then I went to the postoffice, with the same result. The postmaster and I looked over three weekly Harrisonville papers, but no mention was to be found of the institute. Then I hunted up the editor of the little paper published in Archie. He did not know any thing about it, but said he guessed he could find out in some of his exchanges. After diligent search we found a three-line paragraph, saying that the institute would not open until next day in the afternoon. Now just a word here. Friend Abbott informed me that the State of Missouri paid out something like $50.00 a day to the institute men and for their traveling expenses, to teach Missouri farmers better methods of farming. But there seemed to be a general indifference in regard to the whole matter. Friend Abbot gives a talk one evening at each place on apiculture. Still, but few of the bee-keepers seemed to know any thing about it, and those that do know do not go.

During my trip I invited quite a number of farmers and bee-keepers to come to the institute. I was told by some of them that there were matters of more importance going on in Missouri just then than farmers' institutes. This may be true; but sad will be the affairs of any State when farming and kindred branches of agriculture are neglected. The single item of prevention of diseases of domestic animals, as it was there presented by the Missouri State Veterinarian, may be worth hundreds of dollars to almost any farmer. It is the business of these teachers to correct the superstition and nonsense that pass so current among a large part of the farming class. After I had got through my inquiries in regard to the farmers' institute I asked if there were any bee-keepers in the vicinity. The editor told me there was a man engaged quite extensively in that line right in town; and as it was a beautiful moonlight night, I walked over. Sure enough, there was an ideal apiary—at least, it looked so in the moonlight. More than a hundred hives, nicely painted, were grouped under the fruit-trees. A little girl told me her papa was out in the apiary, and she proposed to call him.

"No, no!" said I; "let me hunt him up."

Pretty soon I found some one among the hives and trees, and I commenced:

"Look here, neighbor, may be you know me better than I know you. and may be you don't. My name is Root, and I live in Ohio."

"Why, you don't mean to say that this is A. I. Root himself, right here in my apiary?"

"Yes, sir, I am A. I. Root, and no one else. But what do you know about A. I. Root, anyhow?"

I soon found that friend W. E. Leonard has been for several years a most enthusiastic reader of the A B C book and GLEANINGS. I had to go indoors and astonish the wife and family by my presence. Friend Leonard would make many of the old veterans smile just because he is now in the high tide of enthusiasm. He is just where you and I at one period of our lives stood, years ago. He has raised queens, divided his colonies, and increased until he now has toward 150 colonies right in his dooryard. He has honey to sell during this season of severe drouth, but he will have to buy more sugar to feed his bees, I fear, than he will get for his honey. Never mind. When a good season comes, as it will come sooner or later, he is going to have all his dishes right side up to catch the flow.

The apiary looked very neat and tidy by moonlight, and I praised it so much that the good wife said she almost believed I had better not come around in the morning and see it by daylight at all, for the clear light of day would reveal much rubbish and confusion that I had not seen. By the way, peach-trees seem to grow with remarkable thrift and luxuriance all along the Kansas and Missouri line. At friend Leonard's there was a large peach-tree with such wide-spreading branches that I took a tape-line and measured one of the limbs. It extended out from the trunk of the tree 20 feet and 9 inches. Doesn't this almost match the story from our California friend in another column?

What is life without a home? If some of my bachelor friends could catch such glimpses as I do of home life, with all the children as much interested as the father and mother in the bees, garden, and fruits, I do not see how they could stand it to live alone any longer. Not only were these children interested in all that interested the father and mother, but the father and mother seemed interested in all the studies and juvenile pursuits of the children. Long live the home!

Next morning I visited Lee Emerick, of Lone Tree, Cass Co., Mo. He was not intending to go to the farmers' institute, but at my urgent solicitation he did so. He lives on a hill, or high mound, such as they have in that part of Missouri. In fact, in some directions one can see away over into Kansas, for more than 40 miles, from a point right in his apiary. The ground is so high he escaped most of the frost last spring, and has secured something like two tons of honey from forty or fifty colonies. He has also the finest orchard, with trees all bending with beautiful luscious apples, that I think I ever saw in my life. When I expressed fear that it would not do for me to eat so many raw apples, he took me to a tree of ramboes that were just dead ripe, and declared that anybody could eat as many ramboes as he pleased, without any injury. I was thirsty, and just hungry for nice apples, after my long wheelrides, and I tried the experiment of eating nice mellow ramboes to my heart's content. They did not hurt me a particle. In fact, they did not produce any effect except to make me feel well and strong.

Friend Emerick insisted on my looking at his carp-ponds. There are five large ones — one below another, besides some smaller ones on different parts of his farm. He has been building them for several years, and now he has water enough and fish enough. When I asked him if he could afford to give so much good land to be simply covered with water, he informed me that he had about 600 acres, and some of it might as well be under water as to be devoted to any other use.

Harrisonville is a very pretty Missouri county-seat; but Cass Co. ought to have furnished at least several hundred farmers who could profitably attend the institute. I am afraid, however, there were less than half a hundred. Of course, the attendance was larger during the evening sessions; but these were largely made up of the people from the town. Friend Abbott gave his inimitable poultry talk. When it was announced beforehand, I feared I should not be very much interested in hearing how to keep poultry; but Abbott's talk was a wonderful surprise. He has the knack of combining good sound sense and fun, I believe, in a larger degree than any other speaker I ever heard; and some of his sallies broke forth into some pretty bright scintillations of oratory. His talk on diseases of poultry ought to be worth large sums of money to such a State as Missouri, where poultry cuts such a figure among their industries and commerce.

Just before going to press we extract the following from Colman's *Rural World*, Oct. 25:

> Mr. Abbott's talk on "Poultry," as usual, was instructive and interesting, perhaps made more so by Mr. Abbott's eloquence. One of the greatest factors in the success of this meeting was the presence of Mr. Root, of Ohio, who is an active and energetic gentleman as florist and apiarist, and a man of vim and vigor, whose very presence inspires an audience His lecture on agriculture as related to apiculture, and the need of advancement and progress, was received in a manner most complimentary to the speaker.

I feel all the more thankful to get the above kind notice because it comes from Dr. Ramsey, whom I have before alluded to as giving such valuable talks on the diseases of domestic animals. I think Dr. Ramsey must be a particular friend of mine, and this accounts for his extravagant words of praise. I presume the word "florist" got in because I spoke about growing crops under glass; and, if I am correct, some one complained that I scarcely mentioned bee culture at all. Friend Kellogg, from his magnificent greenhouses at Pleasant Hill, presented the institute with an enormous bouquet, perhaps the finest I ever saw in my life.

C. J. Hostetter, of East Lynn, Mo., has a windmill 25 feet across, which he uses for grinding grain. It is not put up in the air as high as it ought to be for his location; but, notwithstanding, he says it has been quite a well-paying investment. It is true, he can not grind unless the wind blows; but there are very few days when he does not do more or less grinding. He is at no expense whatever for an engineer; and with his elevators and capacious grain-bins he can leave it so as to grind alone when the wind blows; and he often finds a wind has sprung up in the night time, so that a grist is ground, ready to be taken care of, when he gets up in the morning. You may remember that grinding grain by wind power is an old hobby of mine, and I was very glad indeed to find one man who has made a success of it. Of course, the windmill must have some care. One who is inclined to neglect his machinery, leaving his mowing-machine and other tools in the fence-corners during winter, had better not invest in a windmill; but one who takes the wind as one of God's precious gifts, and likes to keep machinery in nice order, and every thing slicked up in neat trim, will certainly find wind power a very valuable thing where he has spare time on his hands.

Friend Hostetter is also something of a gardener; and one of his ventures during the past season was to raise onion-sets. He succeeded so well that he has, or had on hand when I was there, about 200 bushels. Now, I want you to listen while I tell you of a mistake he made. He had had no previous experience in raising onion-sets at all, but launched out into a crop of 200 bushels for his first venture; and from his statement I am inclined to think that he would have made a big success of it had he harvested his crop before the fall rains set in. The sets were of fair size, but many of them were green and growing. He kept waiting for the tops to die down on all of them, as they had already done on a part of them, and at this stage the rains came; and those that were matured, and hard and firm, started again and sent out new roots. When he saw what they were doing he hustled them out of the ground and spread them out on trays to dry. But they had got started on a second growth, and they seemed determined to grow in spite of him. He will, however, by a good deal of laborious sorting, and spreading them out in the sun, to be carried in again at night, get enough good sets, probably, to pay him for his time and trouble—at least, I hope he will. By leaving them so late, a good many of them were too large; and he has 75 or 100 bushels of pickling onions. Unfortunately a great part of them are red, and the demand for pickling onions is for white.

After the above was in type we received the following from friend H., indicating that his venture has not turned out such a bad one, after all:

> *Mr. Root:*—I have sold my red onion-sets. I have some 1200 to 1500 lbs. of Yellow Danvers sets, first-class, left, that I will deliver f. o. b. at 10 cts. per lb., provided it is not any further than Medina.
>
> East Lynne, Mo., Nov. 9. C. J. HOSTETLER.

At just about this crisis on my journey I discovered I should have between 50 and 60 miles a day to make to reach Lebanon, Laclede Co., by Saturday night. At the above place Mrs. Root has a brother; and the arrangement was for her to meet me at her brother's, Saturday night. Fifty miles a day would be an easy job with graveled roads such as we have in Ohio, or even good dirt roads; but as I approached the vicinity of Hickory and other counties in that neighborhood, everybody told me of the terrible hills covered with sharp flinty rocks, with roads so bad that a team could hardly get through with an empty lumber wagon. These statements did not trouble me any—at least, not much, for I rather like obstacles, especially in the way of hills, rocks, etc. They told me, also, there were great rivers without any bridges over them; but the weather was so exceedingly hot and dry that I felt sure I should be able to get across the rivers by some hook or crook. This was Wednesday night, so I had only Thursday, Friday, and Saturday, to make my destination. In spite of friend Hostetter's urgent invitation to remain with him over night, I told him I thought I would go on to friend Yoder's, of Garden City. With moonlight I should have made the trip all right; but I did not like the idea of sitting down and waiting for the moon's slow motions in coming up, so I pushed ahead in the dark. I got along very well until I nearly reached friend Yoder's, when a round stone in my path, on a side hill at that, gave me quite a tumble and some bruises. I came up on the porch just as the family were sitting down to supper. When I told them my name was Root, and that I came from Ohio, you ought to have seen them scatter around and make me welcome, with a good place at their well-filled table. Friend Yoder is also an onion-grower; but he grows Prizetakers started under glass. I think he had toward 100 bushels of onions that looked very much like the Spanish onions on the market. Said I:

"Why, friend Yoder, you could get $1.50 a bushel for these, I verily believe."

"Oh!" replied he, "I am going to get more than that. I expect to keep them till spring, and if I have good luck I may get $2.00 a bushel."

"Why, where did you raise plants to get these big onions? I have not seen any hotbeds or sashes."

"Why, Mr. Root, I just pulled the windows all out of my shop, and with them I grew onion-plants enough to produce this crop."

Friend Yoder has some beautiful apples, and some tremendously rich soil for gardening or for any thing else. He has also secured quite a handsome crop of honey, in spite of the general drouth. Before we retired at night he brought out the family Bible, gave me the old arm-chair, and asked me to conduct the evening devotions. I said to him laughingly, "Why, look here, friend Yoder, you people are Mennonites and I am a Congregationalist. How do you know I shall conduct the services according to your ideas of things? Hadn't you better take the Bible, and go on in your usual way?"

"Mr. Root, it does not make a bit of difference, even if we are Mennonites. We can unite most heartily with you."

I then mentioned to him that friend Hostetler told me that my religious teachings in GLEANINGS came as near the Mennonite faith as could well be, and not be Mennonite entirely. Now, there is a comforting thought right here. I have been told this same thing by members of other denominations; and does it not indicate that, in the great essentials in all the real important part of the worship of God, we of these different denominations are not so very far apart after all? Some good brother once said at a union meeting, that, even if there were division-walls between us, the walls were so low that we could easily reach across them, and shake hands all around.

I expressed a wish to call on Mrs. H. Wagner, at Dayton, not very far distant from Garden City, and friend Yoder at once offered to go with me. We managed to strap the wheel across the back end of his buggy, so we could visit on the way. Mrs. Wagner had only recently taken entire charge of their apiary. Our good brother (her husband) was taken away by death something over a year ago. Notwithstanding this, she has secured perhaps the best crop of honey of any one for miles around. Well, this is not the first time a woman has succeeded better than any of the men-folks in getting a crop of honey. A good many of the friends in Missouri are neglecting their bees to such an extent that their apiaries are getting to be all common bees. Mrs. Wagner was very emphatic in regard to the advantage of the Italians. She told me that pretty much all the honey she had secured came from the Italian colonies, and she pointed out one hive to me of beautiful yellow Italians that had given her over 100 well-filled sections during the months of September and October. When she mentioned that these bees came from one of Trego's queens, I gave a little exclamation of surprise.

"Why, my good friend, I was afraid these very handsome yellow bees would not produce as much honey as the others."

She said that had not been her experience at all—at least, not with queens she got from Trego. Perhaps I am giving friend T. a pretty good advertisement right here; but I am always glad to find in my travels words of praise for our extensive advertisers.

Although it was thrashing-day, and everybody was exceedingly busy, and I too was in a big hurry (to tackle those flinty hills), Mrs. W. insisted on calling the children to see me. She said it had never occurred to her that A. I. Root would visit their home. All over the house and all over the place were things that came from us. The children wanted me to explain a little more about their barometer; and at parting my good friend said to me something like this:

"Mr. Root, my dear husband, when he was alive, was one of your most ardent friends and admirers. He died full of peace, and faith in the Savior you have taught us about; and, through all our joys and sorrows, through the great trials and affliction I have passed through, your little prayer has been my prayer. And I do not know how I should have gone through it all had it not been for the many answers to that little petition in my sudden and great trial—'Lord, help.'"

Can you wonder, dear friends, that my trip through Missouri was a happy one when I met with encouraging words like the above, every now and then, on my way?

HIGH PRESSURE GARDENING

LOW-PRICED ONION SEED AND ONION SMUT.

Mr. Root:—I wish to call your attention to the dollar onion seed, and to warn you against it. You may remember I wrote you some time ago that it had given me a nice crop. Well, so I thought at the time; but it did not turn out so. I told you I had one piece that had smut in it, and laid it to the land; but it was the *seed*. Only one piece showed it while growing; but when we came to rake them out and pick them up, oh dear! we had to throw away bushels and bushels of great large ones that were so affected with smut that we could do nothing with them, and they are a dead loss. It will take at least $30 in cash out of me, and I am little able to lose it. This is why we know it *must* be the seed. Many acres of onions are raised about us, and no one else had smut this year, or *ever* had it. I sold one man some of the seed, and he had it in his; but he never had it before, and has raised them for years. One field has had onions on it for the past 18 years, and it was never known before. Another had been sowed only three years, and all are affected alike. We fertilized this year, as we have years before. As no one else had smut, and we never had it before, we know it *must* be in the seed. We feel the loss greatly. These are hard times, and we think the man who sold you diseased seed ought to be made to stand at least a half of our loss. Will you kindly see if something can not be done to help us out in that direction?

Montague, Mass., Oct. 3. **Fred C. Fuller.**

[On receipt of the above I wrote friend F. that I felt certain it was not because he bought seed at a low price, for nearly all seedsmen, before the planting season was over, came down in their prices to about a dollar a pound; and although the evidence he gives seems almost conclusive, I told him we had better submit his statement to the Ohio Experiment Station before deciding where the trouble lay. I submitted the above to W. J. Green, Professor of Horticulture at the Ohio Experiment Station, and below is the reply:]

A. I. Root:—Yours of the 8th, concerning onion smut, is at hand. The probability is, that your customer is wrong in his conclusions; but there is also a possibility that smut may be carried on the seed. This matter has been pretty carefully studied at some of the stations; and those who are best able to give an opinion say that seed-onions are never affected with smut, nor are sets and transplanted onions. On the latter I have some evidence, and think that it is true that the smut never attacks transplanted onions, provided they are started in soil free from the disease. Moreover, it is believed that infection takes place only at the time of germination, and that the disease is not communicated from plant to plant after that. Now, then, if these views are correct there seems to be but little chance of the seed carrying the disease, and yet it might be done. One must stretch his imagination somewhat in order to suppose a case, however. It might chance that some smutty soil would get in the seed, or the seed might be cured in a shed where there were smutty onions; but no case that I can suppose seems to me sufficient. I can see how the smut could get a start in a field in that manner, but it would take it several seasons to develop to dangerous proportions, for, as above stated, it does not spread from one plant to another the same season, but remains in the ground and attacks the young plants the next year just as they are germinating.

The probability is, that there was a little smut in the fields the year before, but not enough to attract attention, and last year was the first real outbreak. I repeat, that smut may be introduced with the seed; but an outbreak of the disease can be caused only by smutty soil, and the smut may be present in the soil one or two seasons before it is observed—particularly if one has had no experience with it, and is not looking for it.

A few words about remedies. There seems to be nothing known which is perfectly effectual in preventing the disease, if applied to the soil. Sulphur and sulphate of iron seem to be of some use, but are not thoroughly effectual. Transplanting is effectual, and, having tried it thoroughly, I am convinced that it adds nothing to the cost of onion-growing if one is prepared for it.

I should have been glad if it were possible to take the other side in this question, and lay the blame on the seedsman; for if any thing deserves condemnation it is the practice of sending out inferior and dirty seeds. Seeds that will not grow are bad; but weedy seeds are worse. Smut is a weed; and if any one knowingly sends out any kind of smut he ought to be published, particularly the onion smut, for it is distributed only through the grossest carelessness. **W. J. Green.**

Wooster, O., Oct. 10.

[Perhaps I may add that we have never had onion smut on our land, and I have never yet seen a case of it, that I know of; but from what experience I have had with other similar crops, I feel sure that Prof. Green is right. In regard to dirty seeds, all we purchased at a low price was remarkably pure, clean, and nice. The reason why I express myself so decidedly is, that I expected the low-priced seed to be inferior in some respects — that is, when we first had it offered so we could sell it for a dollar; therefore I examined it very critically, and found it fully equal to that which cost nearly twice as much. Again, we sowed some of the seed twice to test its germinating-qualities, and we have grown the onions on our own grounds. Furthermore, if this cheap seed produced smut in other cases, we should certainly hear more of it. Friend Fuller's report is the only one received up to date. The seed was probably furnished us by a large seed-growing firm in Chicago; but as soon as they came out with the low prices, others also offered us seed as low as theirs, or lower, therefore we purchased from different *reliable* seedsmen. I should like to know what onion-growers of long experience have decided in regard to this matter. Is it possible for smut to be introduced through seed?]

SEEDS FURNISHED BY THE GOVERNMENT, ETC.

Friend Root:—I noticed in Gleanings for Oct. 15 that you speak of two grades of Grand Rapids lettuce seed being offered for sale, and would like to have the experiment stations help decide which is the better. I have had some experience which may help a little. Last spring several packages of Grand Rapids lettuce seed were received from the Department of Agriculture, Washington; and this fall, when I began the sowing for the winter crop, not having a large quantity of the seed which I knew was good, I sowed quite a lot of the seed from the Department, and now the crop is getting to be large enough to see what it is. I can say that, in all my experience in lettuce-growing and testing of varieties, I never saw a more good-for-nothing, worthless sort of lettuce. Not over ten per cent of it even resembles the Grand Rapids, and the ninety per cent is a sort of mongrel variety which resembles the Yellow Dock as much as any thing. The crop we have grown from this seed will be almost worthless. If Uncle Sam makes a practice of sending out such seed as this, it is no wonder the people are finding fault with the Seed Department. If the second quality of seed sold by the seedsmen is any thing like the Department seed, it would be costly seed at any price; while the seed that cost more, if as good as what Mr. Davis has sent out, would pay for itself in greenhouse work at the price you originally paid for the Grand Rapids.

By the way, I have some of the plants growing side by side with the Department seed, from seed which came from you last winter, and it is as good Grand Rapids as one could expect to grow in a greenhouse at this season of the year.

The Grand Rapids lettuce always sports a little. The half-pound of seed from which we grew about 5000 lbs. of lettuce last winter shows on an average about one poor plant to the hundred, or not any more than that.

We have a pound of new seed from you this fall, and I must look up the bill; and if it is the cheap seed I will not sow any more, but will have some of the better seed ordered, for I have just finished the first transplanting of about 3000 plants from the new seed, and that is sufficient to try it. If you would like to have the seed tested, please send some, although it will take two or three months to tell.

Wooster, O., Oct. 18. E. C. GREEN.

[I wish every agricultural and rural paper in the land would copy what Prof. Green has to say above in regard to Grand Rapids lettuce seed which the government has been sending out. I first gave the Grand Rapids lettuce seed to the world six years ago. After all this time the government has finally woke up to the fact that this lettuce seed is getting to be a staple, and thereupon it sends out such stuff as Prof. Green tested. It would be interesting to find out where this seed was purchased, and how it got into the hands of the government seed department. Can anybody help us? Are there some "Tammany Ring" transactions that need holding up to daylight in this matter of purchasing seeds for the government?]

OUR LATE-PLANTED FREEMANS.

Those planted the 10th of July, that I have told you about, were killed by frost Tuesday night, Oct. 9. After the vines had got dry, so that the substance had all gone into the potatoes so far as it would, the boys dug them and got about 40 bushels of the finest Freemans we ever raised; and they were on our rich market-garden ground, so that they had been heavily dosed with manure, and yet there was not a bit of scab or blemish, scarcely, on one of them. The potatoes came right up, and the vines grew bright and green, without any mutilation by bugs, flea-beetles, blight, or any thing of the sort. A basketful of the large ones were about the finest I ever saw. A part of the ground was where I raised those great White Pearl onions, and the other part was where strawberries were turned under. There would have been a much larger yield, but the seed was very poor, and nearly half of it failed to come up. You see, it is a pretty hard matter to keep potatoes in good order for planting (or any thing else), until July 10th. Now, if I had good seed I believe I could make a good thing raising Freeman potatoes planted in July. Of course, I might take new potatoes, growing two crops in a season; but there is much difficulty in getting the new potatoes to sprout and secure an even stand. Sprouting them *first*, and planting only those that have started, would make a sure thing of it. These potatoes, dug this late, will, of course, keep very much better than those taken out of the ground two months or more earlier.

A PERIODICAL ON MARKET-GARDENING.

I am rejoiced to know that we have finally a periodical devoted exclusively to the interests of the market-gardener and trucker. Price $1.00 per year. Published monthly by the Market Garden Co., Minneapolis, Minn. The single specimen copy we have received is a bright and handsome sheet, and promises to be full of items of interest to this special class of people. For years I have looked through our agricultural papers, our periodicals for florists, as well as those devoted to gardening, just to glean out what I could find here and there from practical market-gardeners, and those who raise garden-stuff by the acre for the markets of our great cities. I have been expecting, year after year, that we should find a periodical devoted entirely to this class of people. We hope it may have a generous support. We take the liberty of offering it with a club for GLEANINGS for $1.75 for the two.

SPECIAL
FROM
BUSINESS
NOTICES
MANAGER

Only 2 weeks more in which to secure the 5 per cent early order discount.

FLORIDA BRANCH.

Bee-keepers in Florida will be interested in knowing that we have made arrangements with A. F. Brown, San Mateo, Fla., to keep quite a full line of bee-keepers' supplies needed in that section. We expect, soon after this number is mailed, to start the first carload. This will be followed a few weeks later by a second car. We will mail circulars, with full particulars and list of goods in stock, within a week or ten days, to all addresses we have of Florida bee-keepers.

NEVADA HONEY.

Of the carload of alfalfa honey from Reno, Nev., which had just arrived as we went to press with last issue, we have left less than 25 cases of extracted, and some over half of the comb. We are able, also, to offer extracted clover and basswood honey, if any prefer, at the same price, which was as follows: Extracted, in 60-lb. cans, 9c per lb. for single can; 8½c per lb. for a case of 2 cans, or 8c per lb. for 2 cases or more. Comb honey, less than 100 lbs., 16c; 100 lbs. or more, crated to carry safely by freight, 15c.

AUGITE STOVE-MATS AT 5 CENTS.

Since the stove-mat was introduced, a little over two years ago, it has had a wonderful sale, and no wonder; for if every one who has any thing to do on a cook-stove knew what a blessing these mats are, the sale would have been still more wonderful. No one who has used them enough to learn their advantage would think of being without. We have thought that the bottom had been reached in price several times; but it seems we were mistaken. We are sure of it this time, however. The augite mat which we have always handled is the original, and, so far as our experiments have gone, it has continued to be by far the best mat made. The asbestos used is much whiter, and superior in quality. It is hard to convince dealers, however, that it is worth more than some imitation they could buy for a trifle less money. The manufacturer of the augite mat has decided that he would not make an inferior mat to compete with the cheaper grades made, and that it wasn't worth his while to continue making the superior article at the present prices. We have secured the remainder of his stock, 50 gross, at a price which enables us to sell them at a price as cheap as the cheapest. We guarantee they will go no lower than these prices, 5 cents each; 50c per doz.; 6 doz., $2.70, or $5.00 per gross. By mail, 10c each; $1.00 per doz., postpaid.

To any of our readers who will renew in advance for GLEANINGS we will send postpaid one of these mats, *if you ask for it*. If you are in arrears you must pay up to January, 1895, and for one year from that date, if you would be entitled to the mat. If you secure a new subscription, and send with your renewal, paid in advance, we will send you 3 mats instead of one, and the new name will get GLEANINGS till the end of 1895. If you have your premium sent with other goods by freight or express, so we have no postage to pay, we will send 2 mats for renewal, or 6 for a new name with renewal. We want to see one or more mats go into the home of every reader of GLEANINGS, as we believe it will be a much appreciated help to the one who does the cooking. If you will also spend a little effort in introducing them to your neighbors you will be doing good work, and both will be well repaid. We could give hundreds of testimonials speaking in the highest praise of the mats, but we have already said enough. Get one and try it for yourself.

LOWER PRICES ON WIRE-NETTING.

We have just made a new contract for our supply of wire netting and fencing for the coming year; and by it are able to make much lower prices than ever before. Instead of the table of prices on the inside of back cover of our catalog, the following will apply from now on till further notice. You will see by this that prices are nearly 20 per cent lower, the 2-in. No. 19, 4 ft. wide, being now only $3.00 per roll, 150 feet long, with further discount for quantity, and other sizes in like proportion.

—Size—		Price 1 roll 150 ft. long, and fol'wing widths.								
Mesh	No. Wire	12 in.	18 in.	24 in.	30 in.	36 in.	42 in.	48 in.	60 in.	72 in.
3 in	18	*$ 68*	*1 01*	1 35	1 69	2 03	2 36	2 70	3 38	4 05
3 "	16	*1 13*	*1 69*	2 25	2 81	3 38	3 94	4 50	*5 63*	*6 75*
3 "	14	*1 88*	*2 81*	3 75	4 69	5 63	6 56	7 50	*9 38*	*11 25*
2 "	20	68	1 01	1 35	1 69	2 05	2 36	2 70	3 38	4 05
2 "	19	75	1 13	1 50	1 88	2 25	2 63	3 00	3 75	4 50
2 "	18	98	1 46	1 95	2 44	2 93	3 41	3 90	4 88	5 85
2 "	17	*1 35*	*2 03*	2 70	3 38	4 05	4 73	5 40	6 75	8 10
2 "	16	*1 65*	*2 48*	3 30	4 18	4 95	5 83	6 60	8 35	9 90
2 "	15	*2 18*	*3 26*	4 35	5 44	6 53	8 01	8 70	*10 88*	*13 05*
1½	19	1 05	1 58	2 10	2 63	3 15	3 68	4 20	5 25	6 30
1½	18	*1 35*	*2 03*	2 70	3 38	4 05	4 73	5 40	6 75	8 10
1¼	19	1 50	2 25	3 00	3 75	4 50	5 25	6 00	7 50	9 00
1 "	20	1 65	2 48	3 30	4 18	4 95	5 83	6 60	*8 35*	*9 90*
1 "	19	*1 95*	*2 93*	3 90	4 88	5 85	6 83	7 80	*9 75*	*11 70*
1 "	18	*2 33*	*3 49*	4 65	5 81	6 98	8 14	9 30	*11 63*	*13 95*
¾	20	2 70	4 05	5 40	6 75	8 10	9 45	10 80	*13 50*	*16 20*
¾	19	*3 25*	*4 88*	6 50	8 13	9 75	11 38	13 00	*16 25*	*19 50*

Staples for above, ¾ or 1 inch, 8 cts. per lb.

The sizes of which the price is given in *italic* figures are not kept in stock, and will have to be shipped direct from factory in Connecticut. We have in stock here most widths of 3-inch No. 18 (including 12 and 18 inch) and 2-inch No. 20, and all the widths of 2-inch No. 19.

Any of these sizes may be shipped from here when preferred. These and other sizes will also be shipped from New York or Chicago direct, without any additional charge for cartage. In addition to these low prices we will, on lots of 200 lbs. or more, to points east of Ohio and north of Virginia, where the freight does not exceed 40c per 100 lbs., ship direct from the factory in Connecticut, and deliver the goods at your station. To points farther removed from the factory, where it would be more economical to ship from factory we will do so, and allow 40c per 100 lbs. on the freight, on shipments of 200 lbs. or more. It is only on shipments from the Connecticut factory that we can allow the freight. Shipments from New York, Chicago, or from here, will be f. o. b., and freight paid by the purchaser.

HOT-BED SASH AT LOW PRICES.

We had omitted to say earlier, that we still furnish the low-priced hot-bed sash that we sent out so extensively a year ago; and as the price of glass is still lower, we can give you a bargain on glass for immediate orders. Price of sash, one in the flat, for sample, 65 cts.; 5 in the flat, 60 cts. each; 10 in the flat, 55 cts. each. If you want screws to put them together, add 5 cts. for each sash. The holes are all bored, so you know just where the screws are to go. Glass, 8x10, just right for the above, $2.00 per box of 90 lights; 5 boxes, $1.90 per box; 10 boxes, $1.80 per box. We can put up sash all ready to use, glazed and painted, in lots of 5, $1.75 each. I would not advise shipping a less number than five; but if you take my advice you will have all your glass sash shipped in the flat. In this case they go as fourth-class freight; whereas, all complete they will have to go as first-class, and some roads rate them as double first-class,

FULLER'S GRAPE CULTURIST.

After the above book has been a standard authority on grape culture for a period of thirty years, the author, A. S. Fuller, has just put out a new revised and enlarged edition, published by the O. Judd Co. I hardly need add that the new edition is fully up to the times, both in new varieties and modes of training. No matter what system a culturist pursues it will well repay the grower to have "Fuller on the Grape." The author makes grape-growing a regular science and system, like mathematics. If you read the book once through carefully, you will know just what to do to make your vines do their best. This book and the Concord grape have, in my opinion, had very much to do with the fact that beautiful luscious grapes are now to be had all over the United States for only four or five cents pound, and sometimes very much lower. The price of the new edition is $1.40; postpaid by mail, 1.50. We keep it constantly in stock.

TWO NEW INDUSTRIAL BOOKS.

The enterprising editors of the Philadelphia *Farm Journal* have given us two beautiful little books—the Biggle Horse-book and the Biggle Berry-book. Both are full of important hints, put into few words, and both are interspersed with pictures illustrating the subject. The berry-book especially contains a series of colored plates representing sixty strawberries, in shape, size, and color, inside and outside. The special feature of the berry-book is, that it embraces a sort of symposium of the opinions of thirty or forty prominent berry-growers of the present time. In fact, all of these writers and growers have answered a series of questions propounded by Judge Biggle, the author. These little books are not only full of information, but they are handsome enough to grace the center-table of the parlor. The price is 50 cts. each, postpaid. They are offered considerably cheaper, however, when clubbed with the *Farm Journal*. I suppose our readers are so well acquainted with this latter periodical that remark is unnecessary. During my recent travels I found the *Farm Journal* almost everywhere. People who think they can not afford one of the regular agricultural papers usually have the *Farm Journal* any way. The colored plates alone in the strawberry-book, I am told, cost over a thousand dollars.

PRICES OF POTATOES FOR NOVEMBER.

Although I would hardly dare to assume the responsibility myself, I think potatoes can be shipped, with very little danger, to any point south of here at any time during this month. Below we give prices for potatoes ordered this fall. Of course, we can not say at present what they will be when we commence shipping in the spring.

Price of Early Ohio, Early Puritan, Lee's Favorite, Rural New-Yorker, and Monroe Seedling potatoes: Peck, 35 c; ½ bushel, 60 c; bushel, $1.00; one bbl. of 11 pecks, $2.50.

Freeman potatoes, one peck, 40c; ½ bush., 75c; 1 bushel, $1.25; one bbl of 11 pecks, $3.00.

One pound of any of above by mail, 20c; 3 lbs., 45c.

Any of the above potatoes, second size, half the above prices.

I would call special attention to the second-size potatoes; and perhaps I may mention that we have purchased of T. B. Terry all the second size he raised on his farm. At the above prices, only $1.50 for a barrel of Freeman potatoes, *T. B. Terry's stock*, they are certainly a bargain. The largest of them will do nicely to bake. Perhaps it is well to mention that our stock of second size of Rural New-Yorker is always limited because they run large so invariably.

A word in regard to the Early Ohio potatoes. They are so much disposed to scab, especially on our ground, and so unsatisfactory in yield, we think of dropping them. It is true, the Freeman is not quite so early, but in every other respect we think it a much better potato; and for an *extra early* potato we have settled down on Everett's Six Weeks. Although I have not raised it very much myself, it has been making an excellent record with many of my neighbors. We have now in stock about 40 bushels, and the price will be the same as the Freemans above.

In my enumeration of potatoes, with prices, on page 776, Oct. 1, by a blunder the Monroe Seedling was omitted. We had no thought of leaving out this now considered standard potato, for it is our best medium early. The price will be the same as the Early Ohio, Puritan, Lee's Favorite, and Rural New-Yorker, as above.

THE SEED-TRADE FOR 1895.

There seems to be quite a healthy activity among seedsmen in regard to prices and quality of seeds for next year. It begins to be a settled fact that there is such a thing as cheap seeds. If they are not in the market they are certainly in the hands of the *government* seed-shop—see p. 883. Prof. Green is right in saying it would be cheaper to buy lettuce seed at $100 a pound than to take that furnished by the government department as a gift. One might think at first glance that this is a tremendous exaggeration; but when we take into consideration the expense of the glass that covers the crop, the care required, and the value of a good crop of Grand Rapids lettuce grown under glass, he finds there is a tremendous importance attached to the kind of seed one starts with. I find Grand Rapids lettuce seed quoted in most of the seed-catalogs, and also in advance wholesale sheets. The price is low, so that it may be readily retailed at 10 cts. per ounce; and my impression is, that all the Grand Rapids lettuce seed offered by our large well-known seedsmen will prove pretty nearly true to name—perhaps not quite so good as the stock seed grown by the originator, Eugene Davis, and carefully watched, as none but the originator would be likely to watch a production of its own.

By the way, this reminds me that we are out of Ignotum tomato seed, and I do not know where to find any that is just what I want. It is pretty certain there has been quite a little sold that is not up to the original Ignotum as I first gave it to the world. I feel somewhat ashamed of myself to think I did not have enough enthusiasm in time to raise my own seed. Can any of the readers of GLEANINGS help me out in this matter?

I undertook to raise a lot of onion seed from my strain of Spanish onions bought in market; but the dry weather "sat down" on it so that I am not sure I have any good seed at all. We are commencing to test it in our greenhouses. Of course, during such a severe general drouth as we have had the past summer, there have been a good many disappointments, and very likely the seedsman has been blamed, when only the dry weather was at fault. All I can say in regard to the seeds we offer for sale is, that we are planting our own seeds—at least a great part of them—*every month in the year*, and we shall not try to sell to anybody else seeds that we would not plant ourselves. In fact, if there is any reason for being suspicious of any lot of seed, I make a planting of it myself before offering it for sale.

MARCH'S STRAIN OF JERSEY WAKEFIELD CABBAGE, STOCK SEED.

Friend Root:—I send you to-day 5 lbs. of the best stock seed that I have ever put on the market. I saved 5 lbs. for you when Gregory ordered every ounce of this year's crop, and 40 lbs. of my last year's yield. The 5 lbs. is all you can get this year, for I have six orders already that I can't fill. I feel safe in saying this is the best 5 lbs. of Wakefield in America. I have been 10 years working this stock. The original was from Francis Brill's Long Island stock, considered at that time to be the truest stock of Jersey Wakefield grown. At that time only 75 per cent of the heads were cone-shaped; the rest were roundish-oval, with a great many soft heads, and over 10 per cent that made rosettes, with no sign of a head.

This seed that I send you will make every head in a thousand cone-shaped, and 99 per cent of good plants, well grown, will make solid heads. I stake my reputation as a seed-grower, on this seed.

I have 25,000 plants for next year's seeding, and I hope to have enough then to go around. This seed that I send you is from the choicest heads of a field of over two acres. The heaviest and most perfect heads were picked, and wintered under glass. It's the heaviest-heading variety of early cabbage in the world. I have been perfecting this stock for over ten years, and *I defy the world to beat it. Try it and report.* H. A. MARCH.

Fidalgo, Wash., Oct. 15.

[You will notice by the above that I have failed in getting March's seed next year, with the exception of 5 lbs. of *stock seed*, described above. Now, as this 5 lbs. would go only a little way in supplying our customers, we have bought a supply of the best Jersey Wakefield of Francis Brill, for general purposes—that is, to furnish at prices mentioned in our catalog. But this *precious* seed, that friend March was kind enough to send me, we are going to *give* to the readers of GLEANINGS in this way: Every one of you who pays or has paid for GLEANINGS for 1895, before Jan. 1st, may have a paper of the seed free of charge. If you have paid for 1895 already, simply tell us on a postal that you want your paper of cabbage seed, according to this offer. Of course, the packets will not be very large; but they will be large enough so that you can see whether friend March has exaggerated in his account of what he has done. Remember, this seed is not for *sale* at *any* price. So long as it lasts, it will be given to our subscribers. If you want more than one packet, get some of your friends to subscribe with you. For new names we will send both of you a packet—the new subscriber, and the one who induces him to subscribe.

500 YOUNG FERRETS
Now ready to ship at only $3.00 a pair. Price list of Bees and Ferrets free. **N. A. Knapp, Rochester, Lorain Co., O.**

TAKE NOTICE!

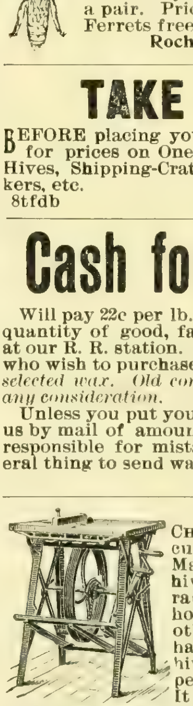
BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis.

Cash for Beeswax!

Will pay 22c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 30c per lb., or 32c for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
eiotf Please mention this paper

PATENTS

Careful attention given to the prosecution of business before the U. S. Patent Office. All business treated as *strictly confidential*. No charge made for services in prosecuting application, until the patent is allowed. Send for "INVENTOR'S GUIDE."

FRANKLIN H. HOUGH,
925 F STREET, WASHINGTON, D. C,

Every Farmer

Ought to read the Rural New-Yorker.

(Published weekly.)

It is the business farmer's paper, and a most reliable authority on agricultural and horticultural subjects. Frauds and humbugs fear it. ONLY $1 A YEAR. Send for sample copy to **THE RURAL NEW-YORKER, New York.**

We have made arrangements so that we can send it and GLEANINGS for $1.75 a year.

Beeswax Wanted.

Will pay 28c cash.

A full line of Supplies always on hand.

I. J. Stringham, 105 Park Place, N. Y.

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

Promptness is What Counts.

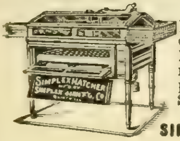
WARRANTED PURE HONEY

Honey-jars, Shipping-cases, and every thing that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping-point in the Country.** Dealers in Honey and Beeswax. Catalog free.

WALTER S. POUDER,
162 Massachusetts Ave., Indianapolis, Ind.

Please mention this paper.

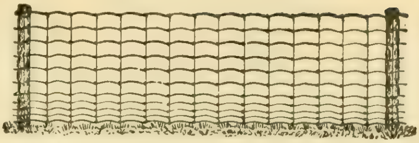
SIMPLEX HATCHER & BROODER Combined.



THE MOST PERFECT Incubator Made. Hatches every egg that a hen could hatch; Regulates itself automatically; Reduces the cost of poultry raising to a minimum. Send for Illustrated Catalogue.

160 Egg size $16.00.

SIMPLEX MANF'G. CO., Quincy, Ill.



EASILY SATISFIED.

Years ago a French Canadian drayman was doing business in Vergennes, Vermont. Realizing that the days of his old blind horse were numbered, he thus appealed to a well known citizen: "**Mr. Parker,** you travel ze country good deal more as I **do;** you see some o-l-e hoss, he not worth much, you tole 'im I **bought** you." We are reminded of this case when an inquirer writes that he has sent for other lists, and the "**cheapest**" will get his order. Moral. **Use horse sense when buying fence.**

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
8tfdb New London, Wis.

Attention, Bee-keepers!

Remember Jennie Atchley will mail you untested queens any day in the year for $1.00. She is now preparing to fill your orders for queens and bees in 1895.

January to June prices. Untested, $1.00, 6 for $5.00, $9.00 per doz. Tested, 3-banded, $1.50; 5-banded, $2.50. Tested Carniolans, $2.50. I will rear the leather-colored Ital's, or 3-banded; silver-gray Carniolans, and 5-banded, in separate yards at safe distance. Bees by the pound, $1.00. Nuclei, per frame, $1.00. This is one of my specialties.

Write me for prices on large lots and to the trade. Catalog ready Jan. 1.

I have been at this business long enough to know how to ship, and please customers.

All Bee Supplies. Dovetailed Hives, Root's Goods, and Dadant's Foundation. Figure out what you want, and write for estimate.

Jennie Atchley,
Bee Co. Beeville, Tex.

☞In responding to this advertisement mention GLEANINGS.

BBB'S!

If you keep *BEES*, subscribe for the **Progressive Bee-keeper,** a journal devoted to Bees, Honey, and kindred industries. ***50 cts. per year.*** Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address

LEAHY MFG. CO., HIGGINSVILLE, MO.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

FULL LINE OF

BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—The receipts of honey large, market well supplied. Fancy white, 1-lb. combs, 15 cts.; amber, 12@13. Receipts of extracted light; white, 7 cts.; amber, 5½@6 cts.; Southern honey, 4½@5. Beeswax, 22 cts.

HAMBLIN & BEARSS,
Nov. 19. Kansas City, Mo.

NEW YORK.—*Honey.*—The receipts of comb honey are very large, and exceed those of former years by far. The demand has not been active of late, and there are no signs of improvement. The supply is accumulating, and the prices show a downward tendency. We quote fancy white, 1-lb., 13@14c; fair white, 11@12; buckwheat, 10c; 2 lb. sections are in very light demand, and sell at from 1@2c per lb. less. The market on extracted is quiet, with good supply of all kinds; white clover and basswood, 6c; Southern, 50@55 per gal. Beeswax firm, and in good demand at 30@31.

HILDRETH BROS. & SEGELKEN,
Nov. 24. 28 & 30 Broadway, New York.

DENVER.—*Honey.*—There is not much change in our market. Best consignments of No. 1 white comb honey in 1-lb. sections, put up in 24-lb. cases suitable for putting in cartons, 12½c; No. 2, in cases, 10½. No. 1 white extracted honey, in 60-lb. cans, 6½@7. We can still handle a quantity of No. 1 comb to advantage.

R. K. & J. C. FRISBEE,
Nov. 21 Denver, Col.

KANSAS CITY.—*Honey.*—The demand for comb is firm; for extracted, light. We quote No. 1 white 1-lb. comb, 14@15; No. 2, 13@14; No. 1, amber, 12@13; No. 2, 10@12; extracted, 5@7. Beeswax, 22@25.

C. C. CLEMONS & CO.,
Nov. 19. Kansas City, Mo.

ALBANY.—*Honey.*—The retail trade is now pretty well supplied with comb honey, and stock is moving slowly with us, and prices less firm. We have a lot of buckwheat in store but not much white clover. The latter is selling at 12@14; mixed and buckwheat, 10@11; extracted dull at 5½@7. Beeswax wanted at 26@28.

CHAS. McCULLOCH & CO.,
Nov. 20. Albany, N. Y.

CHICAGO.—*Honey.*—We note but little change in the market. Best grades of white comb sell at 14@15; yellow and dark, 9@13, according to color and flavor. The receipts are heavier this month than at any time during 1894. Extracted steady at 6@7 with offerings large in the lower grades. Beeswax is scarce, and brings 27@28 on arrival.

R. A. BURNETT & CO.,
Nov. 19. 163 So. Water St., Chicago, Ill.

BUFFALO.—*Honey.*—Trade has been very satisfactory on all fancy grades of honey, and moving off quite freely at 14@15; choice, 12@13; common, 10@11; buckwheat moving slowly at 8@9; stray sales at 10; extracted, 6@7.

BATTERSON & CO.,
Nov. 19. Buffalo, N. Y.

DETROIT.—*Honey.*—Best white comb honey in fair supply and good demand, and selling at 14@15; other grades, 12@13; extracted, 6@7. Beeswax, 24@25.

M. H. HUNT,
Nov. 19. Bell Branch, Mich.

CLEVELAND.—*Honey.*—We quote No. 1 white comb honey put up in cases of 1-lb. sections is selling from 14 to 15c. No. 2, 12@13; extracted, 6@8. Beeswax, 25c. Stock is moving better than any time this season.

WILLIAMS BROS.,
Nov 17. 80 & 82 Broadway, Cleveland, O.

CINCINNATI.—*Honey.*—Demand is good for choice comb honey at 14@16 in the jobbing way. Supply is fair. There is a fair demand for extracted honey at 4@7c, with a fair supply. Demand for beeswax is good at 22@27 for good to choice yellow; supply scant.

CHAS. F. MUTH & SON,
Nov. 19. Cincinnati, O.

BOSTON.—*Honey.*—We quote our market on best 1-lb. comb honey at 13@14, and extracted 5@6, with good demand and fair supply.

E. E. BLAKE & CO.,
Nov. 2. Boston, Mass.

WANTED.—About 500 lbs. of good quality extracted honey. Quote lowest price, and send sample to

J. S. CASE, Colchester, Conn.

FOR SALE.—2500 lbs. No. 1 basswood honey in barrels of 300 and 500 lbs. each, at 6½c, F. O. B.

E. D. TOWNSEND, Carson City, Mich.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c.

eift OLIVER FOSTER, Las Animas, Col.

FOR SALE.—Eight tons fine extracted honey, put up in square 60-lb. cans, two in case, at 5½ and 6 cts. Five or more cases, ½c less. F. O. B. here.

J. B. CASE, Port Orange, Fla.

FOR SALE.—1800 lbs. honey in 60-lb. square cans, price 7 and 8 c., f. o. b. cars here. Sample by mail.

R. H. BAILEY, Ausable Forks, N. Y. Box 81.

Only a part of that car of honey left, but we still have plenty to fill orders at $7.80 per box.

AIKIN BROS., Loveland, Col.

Having secured a fine quantity of buckwheat extracted honey I now offer it in lots to suit purchaser, 210-lb. kegs at 5½c, f. o. b.; also 2000 lbs. of basswood and clover.

W. LAMAR COGGSHALL,
eitf West Groton, Tompkins Co., N. Y.

FOR SALE.—7000 lbs. of fine, ripe, extracted basswood honey, highest offer takes it. Also Italian Bees and Fox-hound pups.

eift ELIAS FOX, Hillsboro, Wis.

FOR SALE.—Japanese Buckwheat, $1.50 per 100 lbs. Bees, Peach Trees, Raspberry and Blackberry Plants.

A. P. Lawrence's Fruit Farm,
Hickory Corners, Mich.

CHAS. ISRAEL & BROS., 110 Hudson St., N. Y.

WHOLESALE DEALERS & COMMISSION MERCHANTS. Established 1875.

HONEY —AND— BEESWAX.

LIBERAL ADVANCES MADE ON CONSIGNMENTS.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

Burpee's ***Seed Annual*** for 1894 is well worth having. Tell to all who plant seeds

W. Atlee Burpee & Co., Philadelphia, Pa.

Cash for Beeswax!

Will pay 22c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 30c per lb., or 32c for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free.

GREGORY BROS. & SON,
1-23o Ottumwa, Ia. South side.

☞In responding to this advertisement mention GLEANINGS.

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CONVENTION NOTICES.

The Western Washington Bee-keepers' Association will hold its next meeting on Monday, Dec. 10, 1894.
G. D. LITTOOY, Sec., Tacoma, Wash.

The annual meeting of the Ontario Bee-keepers' Association will be held in Stratford, Jan. 23, 24, 1895. All bee-keepers are invited.
W. COUSE, Sec., Streetsville, Ont.

Let everybody come to the Midwinter bee-meeting, Beeville, Tex., Dec. 27 and 28. Half fare on all railroads. No hotel bills. The meeting will be at Mrs. Jennie Atchley's apiary, two miles north of Beeville.
JENNIE ATCHLEY.

The next annual convention of the Vermont Bee keepers' Association will be held in Middlebury, Vt., Jan. 30, 31, 1895. Programs will be prepared and mailed later. Let every bee-keeper, whether Vermonter or not, begin now to lay his plans to attend this meeting.
H. W. SCOTT, Sec., Barre, Vt.

The Indiana State Bee-keepers' Association will hold its 15th annual meeting at the Statehouse, Indianapolis, Jan. 9th, 1895. There will be three sessions. Several other associations will convene here at the same time, thus securing 1⅓ fare for the round trip; but a certificate must be asked for when buying your ticket. Programs will be ready in December.
WALTER S. POUDER, Pres., Indianapolis.

The annual meeting of the Northern Illinois Bee-keepers' Association will be held in the supervisor's room of the courthouse, in Rockford, Ill., Dec. 18, 19, 1894.
B. KENNEDY, Sec., New Milford, Ill.

The Eastern Iowa Bee-keepers' Association will hold its annual meeting at Anamosa, in the court-rooms, Dec. 26, 27. Reduced railroad rates. The delegates will be permitted to go through the State prison located in Anamosa. Let each delegate bring something of interest.
FRANK COVERDALE, Sec., Delmar, Ia.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange supplies and other goods for honey. O. H. HYATT, Shenandoah, Iowa. 20tf

WANTED.—To exchange a beautiful lot, 25x110, for a pneumatic-tire safety bicycle.
L. L. ESENHOWER, Reading, Pa.

WANTED.—To exchange new goods, 2 extra fine book-cases, 11 double-walled, double pasteboard-lined bee-hives, standard books and Bibles, hand seed-drills and cultivators, for 2 job printing-presses, and honey at 1c per lb. above market price. Send for circular. W. H. GARDNER, Allegan, Mich.

WANTED.—To exchange a Noxal 200-egg incubator, used 3 settings, at $15, comb foundation at market price, and extracted honey at 8c, for honey-boards, supers, and brood-frames, cut to order.
R. C. AIKIN, Loveland, Col.

WANTED.—To exchange 160 acres of land, 45 acres in cultivation, 4 acres in fruit; 14 miles west of Hot Springs, Ark., for bees or offers.
H. H. T. KOHLENBERG, New Braunfels, Tex.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange 25-lb. aluminum Bicycle, and 35-lb. steel bicycle, for foot-power saw, turning-lathe, etc.
ROBERT B. GEDYE, La Salle, Illinois.

WANTED.—To exchange elegant photographic outfit for large and small portraits and views (sample work on application), for *first-class* pneumatic-tire bicycle, in good condition.
J. FERGUSON, Tracy City, Tenn.

WANTED.—To exchange an observation hive and swarm-catcher, glass all sides, half price; and a marine rotary steam-engine, almost new and perfect, at one-third its cost, for honey. Descriptive circulars free. W. H. GARDNER, Allegan, Mich.

KIND WORDS FROM OUR CUSTOMERS.

The new sections are fine.
Lakeside, N. Y., May 23. FRANK PALMER.

GLEANINGS AS AN ADVERTISING MEDIUM.

I am beset with inquiries about the climate of South Florida, from a single insertion of my little advertisement in GLEANINGS for Sept. 1. You must have an immense circulation, and the demand for such knowledge must be great. I. M. DEPEW.
Manatee, Fla.

I received the sewing-machine in good order, with the exception of the rod connecting the treadle and wheel. It must have got broken while on the road, for it came in two pieces. It has been temporarily fixed. The machine is a beauty, and I like it very much. It is excellent for the money.
Irvington, N. J., Nov. 8. MRS. C. MOMM.

A SUCCESSFUL SHIPMENT OF QUEENS TO CUBA.

The following comes to us written in the Spanish language:

Mr. Root:—I acknowledge the receipt of your letter, as well as that of the two Italian queens, select tested, which I ordered indirectly of you. They are giving entire satisfaction. The insects not only arrived safely, but were introduced into their respective colonies, and to-day have their combs filled with pure Italian brood, which pleases me very much. F. J. BUCHACA.
Cienfuegos, Cuba, Nov. 13.

The two boxes of fuel for the Comfort foot-stove have been received by my brother. He has been for many years subject to asthma, which is usually brought on in the winter time by catching cold. Last year he never took a drive without having the foot-stove in the buggy with him. Result, not a single attack of asthma during the winter. No sum of money would be an inducement for him to be without the stove. Neglecting to order fuel this fall, he caught a cold while riding, and had a severe attack of asthma. If the device were properly advertised, it seems to me it ought to sell by the thousand.
Columbia, Miss., Nov. 9. T. S. FORD.

THAT CRANE SMOKER.

I have received the Crane smoker you sent me, and am very much pleased with it. The master mind that conceived how to control the bee, with her wayward ways and probing disposition, and tools to do it with, is a benefactor to us. With the Crane smoker, model 1894, I am happy; and with it I can control my bees as easily as a monied man can a Western alderman after a wine-supper; and they (the bees) are about as good-natured and full, but not full of slush and wine, but sweets from the delicate flowers. W. M. STURTEVANT.
Sierra Madre, Cal., April 2.

Local Supply Dealers,

I have gotten out a circular that will be of special interest to you. Send me your address, and when the circular is out I will send you a copy. Never mind if you sell supplies only to your bee-keeping neighbors, you are the very man to whom I wish to talk, and I have something to say—a plan to unfold—that will be of mutual benefit.

W. Z. HUTCHINSON, Flint, Mich.

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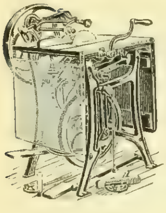

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SIMPLE, PERFECT, and SELF-REGULATING.
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Now ready to ship at only $3.00 a pair. Price list of Bees and Ferrets free. **N. A. Knapp,**
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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO. $1.00 PER YEAR MEDINA, OHIO.

Vol. XXII. DEC. 1, 1894. No. 23.

STRAY STRAWS

FROM DR. C. C. MILLER.

GOOD SLEIGHING Nov. 13.

LE PROGRES APICOLE gives 18 lbs. as the minimum winter stores in France.

"SPEAK ONLY good of the dead" is not a bad maxim; but some make it, "Speak good, only of the dead."

"I HAVE KEPT green fruit in jars for a season by sealing tight with beeswaxed cloths."—Mrs. Atchley, in *A. B. J.*

NOV. 9. Snow 3½ inches deep on my hives. Won't I wish they'd been in the cellar if they don't get another flight? *Later.*—They didn't get it.

FUMIGATION with sulphur is a good thing for a bee-cellar—of course, before the bees are in; and don't fumigate the people if any live over the cellar.

AN APIARY of 30 colonies, kept in the city of Chicago by Mrs. S. M. Brooks, gave a crop averaging $12 per colony, mostly from sweet clover.—*A. B. J.*

"IT IS BECOMING apparent that hives should be sized according to good and poor seasons rather than poor and better localities."—C. W. Dayton, in *Review.*

THE *Revue Internationale* occupies the whole of its October number with a sketch of the life of Francis Huber; and an interesting number it makes too.

I DON'T KNOW the answer to Bro. Poppleton's question about bees propolizing late in the season. I've also known them to put big daubs of glue at the entrance, which rather looked as if meant for warmth.

GOLDENROD, says J. K. Goodrich, in *A. B. J.*, yields well in moist localities, but not on dry ground. He says, when abundant in the hives the odor is such that a novice might mistake it for that of foul brood.

CELLARED my bees Nov. 20. They had gone through two hard freezes, with thermometer 7 and 10° above 0, and ought to have had another fly; but it was too risky to leave them out longer. I wish they had been put in Nov. 1.

EGYPTIAN BEES have the reputation of being cross. F. W. Simond writes from Alexandria to *Revue Internationale*, that, on their native soil, they are very gentle; but taken to Europe they become vicious, as do animals of larger size.

DOOLITTLE says, in *A. B. J.*, that winters are gradually becoming harder on bees, and thinks that, by the year 2000, nearly all if not all the bees north of 40° will be cellared. But he much prefers a special bee-cellar with no building over it.

IN SWITZERLAND large numbers of bees died, death being attributed to fine dust or rust on pine needles getting into the breathing pores of the bees while working on the pines. Could that explain some of the unexplained cases in this country?

RAMBLER, on p. 868, handles the term "frog-eating" very gingerly, fearing to show disrespect. If he has ever tasted the hind quarters of a "bloody-noun," well fried in butter, and concluded he didn't like it, I've a good bit of "disrespect" for his taste.

BRITISH BEE-KEEPERS have two kinds of conventions. The one seems to be chiefly a business meeting. The other they call a "conversazione," which hasn't the least shadow of a program, but is taken up with solid bee-talk. Reports of the latter are very interesting.

THE REPORT of the convention at St. Joe, so far, in the *American Bee Journal*, is unusually full. Even for those who were there, it will be interesting to read it over. So much is crowded into two days that we can't remember it all; so in reading the report, much of it comes as new.

EDITOR YORK says the editorial "we" seems more natural than "I." Some very bad things are natural. He says "I" is sometimes egotistical, but "we" isn't. Tut, tut, George! is there any thing very modest in a man's feeling so big that he thinks he's more than one person? I'd like to see just one good reason for saying "we" when you mean "I."

H. GUEHLER, a prominent German honey-dealer in Berlin, keeps in front of his retail honey-depot an observatory hive, which attracts attention and noticeably increases sales. Four such colonies are kept in his apiary so as to change off, each one being confined only half a day at a time.

ARTIFICIAL HONEY is reported in Bavaria, of such composition that "chemical analysis has not detected any thing differing from the honey of the bees." But the *B. B. J.* wisely comments, "The composition of leather and meat are almost identical, but one would hardly relish the one as well as the other."

MRS. HALLENBECK introduced a queen after this fashion: Shook a lot of bees in front of a hive supplied with combs, sprinkling the bees with thin syrup, then dumped the queen among them, letting all run in the hive. Of course, I suppose the hive was on a new location. Now just say why that isn't a real good plan.

MRS. HALLENBECK says, in *Progressive*, that the percolating plan of feeding with tumbler and saucer has been used by her ever since she fed bees. Mustn't keep things to yourself, sister H. [I wonder if she knew she had struck on to a really good thing. If she did, why did she keep it under a bushel? Dear me! I wonder if there is any thing new under the sun.—ED.]

THAT TABLE of Coggshall's, on p. 865, while very interesting, doesn't prove any thing. If he would be kind enough next year to put the ten-frame hives in the different apiaries side by side with the eight-framers, it would help no little to decide between the two kinds. [I don't agree. I think it shows pretty well that there is not so much difference between the eight and ten frame hives as many suppose. Of course, it would have been better if the two kinds of hives had been in the same yards; but even as it was, if the ten frames are really better they ought to have shown some *slight* evidence of it in the table. The eight frames seem to hold their own every time.—ED.]

HERR REEPEN, in *Centralblatt*, mentions the testimony in GLEANINGS as to bees moving eggs, and says it may be like some other supposed facts that were firmly established and afterward found to be not facts but errors. He thinks the exceeding tenderness of the outer coating of the egg makes transference impossible. [If man with his clumsy fingers can transfer eggs successfully, and good queens result therefrom, it seems to me the bee can do it. The accumulated evidence that it does do it is quite conclusive. The coating of the egg is very tough, as I have found in dissecting for the microscope. If it will resist the manipulation of man, it certainly will that of the bee.—ED.]

THE MAN who tells all about his failures may do as much good as he who tells of his successes. How much time we might save if we could know, without trying, that certain things would only end in failure! [Yes, indeed. We will gladly open our columns for the telling of failures. Many a scheme we may pet for years, and, when a favorable opportunity comes, try it only at a great loss. If a few of these pet schemes were shown up, not as they appear in beautiful and enticing theory, but in actual practice, it would save many another good brother bee-keeper dollars. The knowledge of what others have done, even though it resulted in failure, is invaluable to the fraternity at large. Come, brethren, don't be too modest.—ED.]

GENERAL CORRESPONDENCE

THOSE ESSAYS AT THE ST. JOSEPH CONVENTION.

A REPLY TO W. Z. HUTCHINSON; THE VALUE OF CAREFULLY PREPARED PAPERS FOR CONVENTION PURPOSES; CONVENTIONS FOR ADVERTISING BEE-KEEPING.

By Emerson T. Abbott.

"There was one mistake (?) made in getting up the program, and I am not sure but it is a worse one than that of having no program at all. . . . . I have reference to the securing and reading of long essays descriptive of bee-keeping in foreign lands. . . . . We can not afford to travel hundreds of miles to listen to what we can just as well read in the bee-papers."—W. Z. Hutchinson, in *American Bee Journal.*

Friend H. puts this as though there could not be two sides to the question; and as I was the one who conceived the idea and secured those papers, and as I am just as certain that there was no mistake made in so doing, I want to have *my* say.

There is but one reason given why such papers are a mistake: and that is, one can not afford to travel hundreds of miles to listen to what he can just as well read. If this be true, then there is no use of having a convention at all, for it is just as easy to ask and answer questions in the papers as it is at a convention. Do not the bee-papers do that very thing in every issue? It is all very well to take up some of the time, but not all of a convention, by such questions as, "Which is the best smoker?" "Which is the best queen—one with a body all yellow or one with a tip of black at the end of her tail?" "Can you cut sweet clover for hay just as it comes in bloom, and then let the stock keep it eaten down so it will not bloom any more that season, and yet the bees be able to gather a bountiful crop of honey from it?"

Now, friend H., and all the rest of the people who seem to think the sole aim of a convention is to ask and answer questions, could read the answers to all of these questions in a paper just as well as to have them given *viva voce* in a convention; and, further, the answers are more likely to be to the point.

If one will stop and think for a moment, he will see that this talk about taking the time of a convention is a fallacy. What is the time of a convention for, any way? and what is the purpose for which conventions are held! The real end in view is, or should be, the promotion of the best interests of bee-keeping throughout the land. I hold that such papers, occupying only a small part of the time of the convention, as they did at St. Joseph, do as much, if not more, to promote the general interest of bee-keeping as any other part of the exercises.

Conventions are not held for the sole information or enjoyment of the people who attend them. There is always a larger audience to be had in mind, and whom we should be just as anxious to reach. Bee-keeping depends in a great degree on this larger audience for its prosperity. In fact, its life depends upon the attention and patronage this larger audience may give to the products of the industry. The trouble with some conventions is, that the whole program seems to lose sight of the general public, and they either resolve themselves into a mutual-admiration society in the interest of a few, or else become an automatic question-box to satisfy the latent egotism of those who have an unconquerable desire to ask questions in order that they may have a chance to answer them, flattering themselves all the time that they can answer them a little better than any one else. All questions are not asked for information.

Then if it were not for these carefully prepared and interesting papers, I apprehend that the general public would know and hear but little about our meetings. The papers of St. Joseph gave large space to the doings of our association; and what was the principal matter that entered into the make-up of their articles? Why, these papers that friend H. says were a "mistake." If I mistake not, the papers would not have given half the space or attention to our industry if this "mistake" had not been made. In fact, there would have been but little of interest for a daily paper to publish had they not been read. No one will argue for a moment, I presume, that we could have gotten these papers published in the daily papers if they had not been read at the convention. Then, again, I am not so sure that the parties who furnished the papers would have written them for any of the bee-papers. I am quite sure they would not without pay. This is not all. These papers are being copied by other journals, and so the influence of the North American is still going on, and will go on as long as any of the essays are in print, and are being read by the general public.

This answers another statement made by friend H., that it does not pay to publish the notices of our meetings in the agricultural journals, because the people who read them will not come. What of it? The thing we are after is, to let the people of the continent know that there is such a thing as the North American Bee-keepers' Association; and then when we want a favor of the railroads, or Congress or a State legislature to pass a law for the protection or promotion of our industry, we shall not be asked, "What is this, any way?" or be further greeted with the remark, "I never heard of it before!" I presume friend H. believes in advertising, to say the least, and I am sure this kind of advertising will pay in the end. I venture to say that there are some people in this country who have a realizing sense of the importance of bee-keeping who had never heard of the North American Bee-keepers' Association one year ago.

I took special pains to have the Board of Agriculture of our State know that there was such an association in existence; and more: I saw to it that the secretary of said board had an earnest and urgent invitation to attend our meeting. I am sure this will be of great benefit to our industry in Missouri, if not in the entire country. All of this advertising helps to sell honey, and selling honey is of about as much importance to the bee-keeper as any thing of which I know.

In conclusion I will say I do not think it is a mistake to have some well-digested essays read at the North American, neither do I think it time and money spent in vain to advertise the meetings in the agricultural journals. The more of this the better it will be, as I see things now.

St. Joseph, Mo., Nov. 17.

[At first I felt as Mr. Hutchinson expressed himself; but the more I think of it, there is much truth in what you say. I would especially emphasize the fact of the great good that can be accomplished in having our conventions advertise the honey business. Even if the notices in the agricultural papers do not help the attendance, it lets farmers and everybody else know that bee-keepers are alive and doing; and when they see the great stacks of honey on the market, instead of jumping to the conclusion that "it must be adulterated, for the bees could not produce so large an amount," they may think differently. Yes, indeed, bee-keepers should avail themselves of cheap advertising; that is, there is hardly an agricultural paper but would be glad to publish notice of any bee-convention, free of charge.

Regarding those essays, I have known fo some time that we might help the general public to a better understanding of our industry, providing we help the reporters of the great dailies to get material regarding the convention. If it is all off-hand talk, they are pretty apt to put in little or nothing, and even that so garbled as to be worse than nothing. Well, then, if they are handed papers that are read, they can publish *so much* that will be presented to the general public in a form acceptable to bee-keepers.—Ed.]

RAMBLE 121.

GETTING CLAMS, ETC.

By Rambler.

Mr. Hilton is about the only bee-keeper of any account near Los Alamos. He has only one fraternal competitor, and that is a German bearing the name of Kisswickeder; or if I have not got it right, it sounded as above. Mr. Hilton drove me out in his cart one forenoon, and we found the apiary and residence of our German bee-keeper, but we regretted to find the owner absent. The hills were very tame around this apiary, and there was a plentiful supply of bee-pasturage; but it was nearly as retired a place as the spot in the Zaca Mountains where Mr. Hilton wished to locate the Rambler. Our German lived the happy life of a bachelor in this retired spot, and his little cabin was characteristically German in its surroundings. A great variety of flowers, roses, etc., dotted the lawn, and many rare varieties of trees and shrubs were growing, among which Mr. Hilton pointed out a tea-tree. A tall pole bore upon its summit a dovecote, in which a numerous flock were cooing their love-notes. Evidently, in the absence of dog or cat, our friend found much companionship in the feathered creation, as well as with his bees. Another evidence of German occupation was an empty beer-barrel, and several bottles marked "Lager" or "Rhein Wein." The pipe, also, solaced the German.

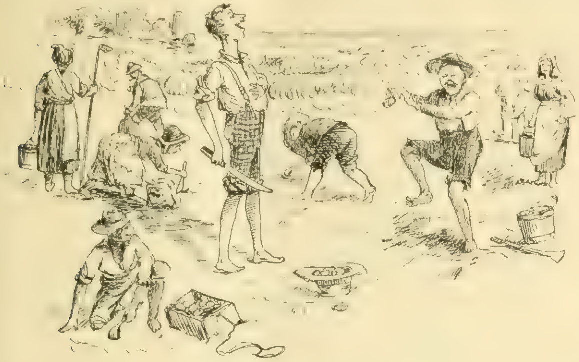
A short distance from the cabin we saw the busy apiary. Mr. K., at one period in his apicultural career, owned 200 colonies; but at the time of our visit it was reduced to 80 colonies; and, like Mr. Hilton's bees, these were surely getting honey; and I afterward learned that he got a ton or two of surplus honey. Long may the name of Kisswickeder wave!

Our sojourn in Los Alamos, however, terminated. We regretted to leave so kind a friend behind as Mr. Hilton. His generosity broke forth one morning in bringing to our camp a roll of butter and a can of honey. For many days thereafter we audibly ejaculated, "May the shadow of Hilton never grow less!" I did not regret, however, to leave those various-hued babies. The last thing I discerned distinctly, as we rolled out of Los Alamos, was one of those juvenile faces with a squall spreading rapidly from the mouth to the ears, getting ready, as I opined, to have its picture taken.

Bro. Wilder, I know, had some regrets at leaving, for some of those bright-faced Spanish señoritas tugged hard at his heart-strings; but deer-hunting ahead had greater attractions, and he tore himself away.

PISMO BEACH.

In Santa Maria we made a brief halt, and then pushed on into the (to us) unknown country beyond. A little beyond the town we forded the Santa Maria (Mah-*re*-ah) River. The ford was over a mile across, and not a drop of water in sight. This, too, was one of those riv- that are bottom up, which we find so often in this country. The sand was, however, worse to ford than water would have been, and our ponies needed to rest quite often. This sand ford is not only toilsome for horses, but a terror to the rider of the wheel. We learned from a cyclist that it is the only place in all the journey from San Francisco to Los Angeles, over 500 miles, where a wheel will stand alone upright in the sand. We remarked to each other that we should like to see A. I. Root sweating through that spot—not that we wish to inflict punishment upon him, but we thought it would be good for his liver; and, besides, if it proved too hard for him we could lend a helping hand with our sturdy ponies. See?



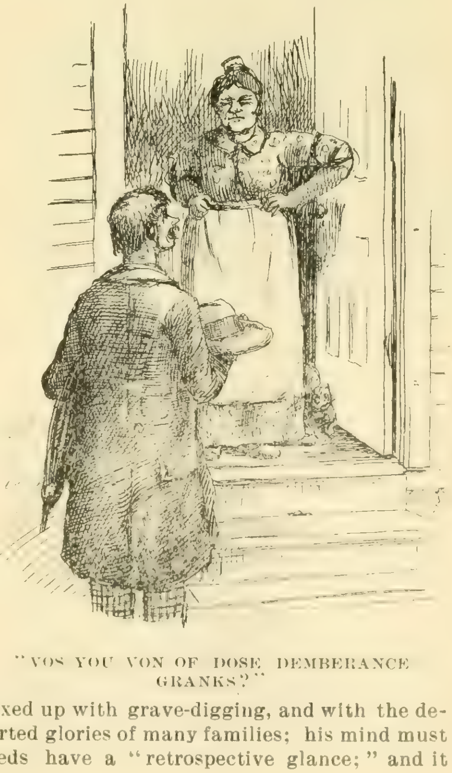
"GOT ONE, WILDER?"

Our ponies struck off at a rattling pace upon the hard road after we left the ford; and that night and the next day, Sunday, we quietly camped within a little distance of Los Berros. Monday it was through Arroyo Grande, a thriving town. Here we deflected a little from our route, and again sought the shores of the Pacific at Pismo Beach. In all our journey from Los Alamos we learned of only one bee-keeper, and he was such in a small way, we were informed. The country was largely a grazing region, and there was no visible pasturage for bees.

Pismo Beach is quite a famous local summer resort, and is noted for good fishing, and, above all, for the immense number of clams that can be dug from the sandy beach. Ranchers and their families come here with their tents and cooking-utensils, and live for weeks, bathe in the surf, dig clams, eat and sleep. This camping on the beach is a dull, prosy, and lazy life. The ranchers say they can live cheaper there in the summer months than they can at home; and the change is agreeable to their families. We found the usual attractions here—skating-rink, dance-halls, and an imitation "Ferris" wheel; but the attractors all declared that it was dull times for them, and no money to be had. We spent a night and a portion of a day here; saw the loading of vessels with thousands of bags of asphaltum, which an extensive mine back in the hills supplied; visited the chalky cliffs, and explored the caves where many others had trodden before us, and enjoyed the dense wet morning fog. It is early in the morning, when the tide is out, that the harvest of clams goes on. The residents of the canvas village go out barefoot, with trousers rolled up above the knees, armed with shovels, stout sticks, or even a strong knife, and then get down close to the surf, and dig. I armed myself with a butcher-knife, and a little digging in the wet sand unearthed a large healthy clam; a little more digging, and another. I soon had two dozen, which was enough for our needs, and I left the ranks of the diggers. Pismo Beach with its lazy aspect we left behind us, and remember it as a place we have seen.

Our journey was again into the interior, and San Luis Obispo our objective point. Our day's journey was enlivened by passing through a number of little valleys made fertile by life-giving springs of pure water. In these valleys a variety of farm products was cultivated, and the acres of corn, potatoes, and alfalfa, and the neat cottages, gave evidence of thrifty communities.

In the suburbs of San Luis Obispo we saw quite an apiary of box hives; and after we had become thoroughly established in camp in one of the public parks, I took an evening stroll out to said apiary, and found that it was owned by a German, and, in connection with his apiary, he worked a cemetery. A person can not be expected to be up with the times, perhaps, whose mind is so mixed up with grave-digging, and with the departed glories of many families; his mind must needs have a "retrospective glance;" and it



"VOS YOU VON OF DOSE DEMBERANCE GRANKS?"

was proved in this case by the condition of the apiary, which loomed up in fine style in box hives.

It was just my luck, as I entered the capacious front yard, to have three rotund women enter ahead of me, and completely surround and take the attention of the cemetery cultivator. His wife was, however, at hand, and with palpitating gall I addressed her.

"Madam, can I buy some honey of you?"

"No," says she, "ve haf none. Dose pees makes no honeys dees yahr. Odher yahrs ve haf so much."

"How many hives have you?"

"Ve haf a goot many hifes; may pe thirdy; may pe thirdy-vive. Ve haf so much honeys last yahr. Ve haf more as much hives and honeys as anypodies all ofer dees goundry."

"From what source do your bees gather honey?"

"Vat zorse? zorse? Mein cracious! de pees don'd vork on zorse. You tink pees, like flise, vork on zorse? No, mein cracious! zorse! Our pees vork flowers, posies, roses. Ve haf flowers, posies, roses, for pees to vork on from von ent of de yahr to de odher ent. Zorse! Mein cracious!"

I apprehended that the good lady had misunderstood my question; and as I find it no use to argue with a woman I proceeded with the next question. Said I:

"Ma'am, do you secure your honey by means of sections, or do you Hhruschka it?"

"Vat is dat you means? You means ve visky it?—visky dose nice gomb honeys? No! Vat you dinks ve run a peer-garten, a visky-zaloon? No, mein cracious! Vat you dinks! Mein huspant, who vorks on de cemetery all day, viskies his honeys! No, mein cracious! Vat vas you, anyvays?—von of dose demberance granks vat sees visky in de moon, in de stars, in de deep vell of vater, in our honeys?"

She raised her voice and shouted to her husband, "Hans Blinkenhoffer, gome here! here vas a visky grank."

Hans was, however, still surrounded, and I bade a hasty good-night and retreated in good order, resolving not again to interview foreign people too closely in relation to the honey business when they are so far behind the times in their knowledge of it. To turn his little crank on posted people will hereafter be the duty of the Rambler.

A CHAT ON EUROPEAN MATTERS.

SOMETHING GLEANED FROM FOREIGN BEE-JOURNALS CONCERNING THE JOURNALS THEMSELVES.

By Charles Norman.

[We may explain to our readers, that the following articles by Mr. Norman are of the nature of Dr. Miller's Stray Straws, being compiled from *La Revue Internationale* from January to June inclusive. We believe they will be found to be of great interest as showing what is going on in that portion of the world—France and Switzerland. Mr. Norman is thoroughly informed on all that has been printed in the French language relating to our pursuit, and is, we have every reason to think, a careful and judicious observer. Two more articles will follow this.—Ed.]

La Revue Internationale d'Apiculture (The International Review of Apiculture) is a monthly, written in French, and edited by Mr. Edouard Bertrand at Nyon, a city in the French part of Switzerland. It is not confined, though, to the latter section or province, but circulates wherever the French language is spoken or read—in France, Belgium, Alsace, Lorraine, Italy, Canada. It has some subscribers even in Chili, India, Cochin-China, Australia; a correspondent from Merrylands, N. S. W., is quite happy that his attention has been directed to the *Revue*, and writes: "Hitherto I had not read any but English bee-papers—Gleanings and *The Bee-keepers' Review*—two excellent journals; but how I longed to read my favorite subject, apiculture, in French!" The *Revue* is also well patronized by Swiss, French, Italian, Austrian, and German advertisers. Among them I notice the name of one of your correspondents, Mr. Ph. J. Baldensperger, who now resides at Nice, France. There is an advertisement by a French ladies' firm who evidently mean business, for they make this quite timely remark: "Letters not accompanied by a stamp will not be answered."

The *Revue* well deserves all this patronage, for the leading articles are interesting and well chosen, as Mr. Bertrand understands both English and Italian; and as some of his contributors understand German, the foreign bee-literature receives due attention. The editorial remarks regarding bee-matters are fully up to the times. A good many reports and condensed correspondences are given; the readers are kept posted concerning bee-keepers' meetings, etc.

The French, you know—the better class of them—have very pleasant manners, and "French politeness" is a word that tells a good deal. Well, the *Revue* is in full harmony with that tone, and there is hardly a page of the same but shows it more or less. Now, by this I do not, of course, mean that our American bee-writers lack courtesy. On the contrary, the great majority of them are all right in this particular; but are there not a few—just a few—with whom it is no pleasure to differ, and who, in their fancied infallibility, come down on every opponent as if he were a most despisable fool who could not be castigated enough?

Mr. Bertrand has also written a book, "La Conduite du Rucher" (The Management of the Apiary), which, to judge by a few excerpts that are cited in the *Revue*, must be quite a thorough and commendable work. It has reached its seventh edition. In fact, there is no want of French bee-literature; and any Frenchman who feels like becoming a bee-master can find enough books, pamphlets, and periodicals to satisfy his needs.

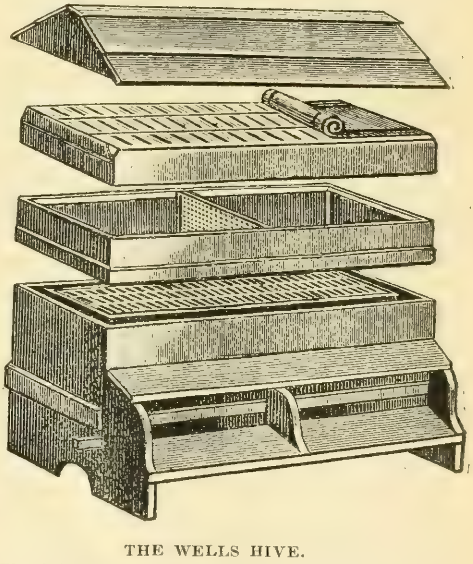
There is a French bee-paper published even in Africa—*Nahhla* (the Bee), an organ of the society of the Algerian apiculturists, and edited by Dr. Reisser, "the high skill of whom in apiculture is well known."

Among the books are translations of Mr. Cowan's "Guide," and Mr. Dadant's "Revised Langstroth." Mr. Charles Dadant is a contributor to the *Revue*, and his articles are well written — indeed, the emanations of a mind which combines fine judgment with great experience. He is held in high esteem by the editor of the *Revue* as well as the other contributors. When mentioning his name they do not spare words like "master," "celebrated," and the like, and they are quite proud of Mr. D. being their fellow-Frenchman. In fact, in bee-matters he is, to all appearance, *the* authority with them. The French, like any people, may have their faults, but they are far from participating in that hypercritical vein which characterizes some other nations; and whenever one of them has worked himself up to celebrity they acknowledge it without jealousy, and treat him with that respect which is due him.

The French language has some quite happy expressions. For instance, "la ruche" means hive; "la ruchée," colony; "le rucher," apiary —all words that are based on the same root. "Les fixistes" are those bee-keepers who use gum, skep, or box hives; "les mobilistes," those who use hives with movable frames—two words we well might adopt. "Le bourdon" means the drone; and when a queen is a drone-layer they call her "bourdonneuse;" so a colony or a hive which has either such queens or fertile workers is called "bourdonneuse" or "bourdonneux." Could we not likewise use the short word "dronish" for such queens, colonies, or hives? The French bee-keepers (also those of the other continental nations) do not call each other "friend" or "brother" or "sister," as is customary over here. With them these words mean a great deal, and people there are very careful in addressing another person by such a name. Therefore they call each other "collègues (colleagues), thus indicating that it is a like pursuit that connects them.

In France and Switzerland, bee-keeping is not so advanced as in the United States, the number of the fixists* being much larger there; yet the mobilists, by incessant private as well as public agitation, are gaining more and more ground. There are, however, several departments of France—even Mr. Bertrand admits it—where the box hive is preferable. Reason: "the honey is mediocre, red, thick, and so gummy and dense that it separates from the wax with the greatest difficulty. In order to extract it, it is absolutely necessary to break the combs. Its sale is difficult, and one does not like it, even where it is produced. Its shipment is very troublesome and painful (on account of the geographical condition of the country), and its price is very low." Therefore the production of *honey* does not pay there at all, while the production of *wax* does, the latter being excellent, and selling at a good profit.

Of the hives with movable frames, the two most used are the Dadant hive—either pure or more or less modified—and the Layens hive. There are also in use the Langstroth, the Cowan, the Sagot, the Burki-Jeker, the Berrichonne, the Wells, and other hives—quite a symposium, it seems, to suit the most divergent tastes. As no description of those unknown to us is given, I can not enter into any discussion of their respective merits and demerits; but perhaps the one or the other of them contains a feature or features we could add to our hives, and so it might be worth while for us to inquire into this matter a little.



THE WELLS HIVE.

The Wells hive is of English origin (unless it be an imitation of that renowned German bee-keeper Dr. Dzierzon's twin hive). What it is, Dr. C. C. Miller told your readers in GLEANINGS, Aug. 15, p. 643. I send you an engraving of it, which you may copy, and which explains the whole plan sufficiently. The correspondents of the *Revue* are divided as to its merits. Some are pleased with it, some displeased, and the last word has not been spoken yet.

Over two pages of the *Revue* are devoted to an article of Mr. Dadant, on the Layens hive. Mr. Fourcassié, the secretary of "La Société d'Apiculture du Tarn," had, in a bulletin of the same, remarked that Mr. Layens' methods were permeating America, and so on, and Mr. Dadant now deals pretty severely with the poor "feller" for this error. He says that, if this hive or method were in use in the United States, either Mr. Doolittle or Mr. Root and his co-workers must have known it; but Mr. Doolittle, in answer to a correspondent of GLEANINGS, confessed his ignorance of it, and Mr. Root has not given any light either. By the way, Mr. Dadant believes in rendering "honor to whom honor is due," for he calls Mr. Doolittle "one of the apiculturists who are best posted regarding what is going on in apiculture in the United States," and relates that Mr. Root selected him for answering questions asked by the subscribers of GLEANINGS, "because he writes for all apicultural journals of America, and nobody knows the different systems employed there better than he." In a footnote Mr. Bertrand mentions Dr. C. C. Miller as being "one of the most prominent bee-keepers of the United States, who still, in 1893, had been president of the North American Bee-keepers' Association." etc., and "who, besides, is thoroughly posted regarding the matters of France, as he reports to GLEANINGS on foreign publications," and then, to show that even *he* (the doctor) has not the least idea of what the Layens hive or plan is, quotes his—yes, *his* (the doctor's) own description of the Layens method in Stray Straws (GLEANINGS, p. 151)! A little bad for the doctor, is it not? But never mind, doctor, for, you know, *quandoquidem bonus dormitat Homerus.* Well, Mr. Dadant goes on to say that the Layens frame originated in the United States. A few years after Mr. Langstroth had introduced his frame, "Homer King, of New York, desirous of selling hives, tried to run opposition to Langstroth, stealing his invention" (Mr. Dadant's own words); "but, lest he be accused of having stolen it completely, he made frames *deeper than wide*, of about 31 by 37 centimeters." After his arrival in the United States, Mr. Dadant, who had never before seen any frames like Mr. Langstroth's, viz., wider than deep, adopted the King frames for his hives, and described these hives in a French journal as his favorite hives. Mr. Layens, copying Mr. Dadant, introduced said frame in France. Mr. Dadant, however, as well as the other American bee-keepers ("the American is practical above all, his chief question being the profit," says Mr. Dadant) came afterward, by comparative tests, to the conclusion that the wide frame is preferable to the deep, and thus discarded the latter. In conclusion, Mr. Dadant, shuddering at the thought that his French countrymen might suspect him of having been morally infected with that most dreadful of all human creatures, the Yankee, begs the reader to believe that *his* preference was by no means based only on the question, "Which is the best *paying* frame of the three (deep, square, low), that are in use here?" I still remark that the Layens hive is a large one-story hive with 20 frames; and Mr. Bertrand's opinion of it is, that its management is somewhat "simpler" than that of the hives with upper stories, and that, therefore, this hive suffices for the small bee-keeper, for persons who desire to produce honey solely for their own use, but that it does not fit "the very producers who wish to draw all possible profit from their apiaries."

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*Those who use skeps or hives without frames, in contradistinction to "mobilists," who use movable frame hives.—ED.]

St. Petersburgh, Fla.

To be Continued.

WINTERING BEES IN DUG-OUTS.

PLAIN DIRECTIONS ON HOW TO MAKE A GOOD, CHEAP, AND SERVICEABLE REPOSITORY.

By John Handel.

Those who have not yet solved the wintering problem for themselves, and have a place that is well drained for their apiary, might try my plan, which I have successfully practiced for the last ten years. But before I go any further I will describe the location of my apiary.

It is on the south side of a rather steep hill; soil loose and sandy. Whether all or any of these conditions are necessary or not, I can not say. But one thing I am quite certain of; and that is, drainage must be perfect; for if surface water finds its way into one of my repositories the bees are sure to spot the hives before taking out in the spring.

To make my repository, and have it convenient, I dig a hole 8x10, and 6 feet deep, right in the apiary; cover this hole with logs laid crosswise, and then throw the earth on top, heaping up as steep as the earth will stand. Thus it will shed water perfectly, and no other roof is necessary. For an entrance to this cave, I drift a hole or trench 2¼ ft. wide, and at least 6 ft. long. This is also covered with timber and earth, and this ante-room or hallway need not be more than 4 ft. high, because, in taking bees in and out, the hives can be slid in on a smooth stick of timber, say 2x4, much easier (especially if wet or icy) than they can be carried. A door at each end of the entrance-way, and this repository is done.

These repositories need not look unsightly in an apiary—simply a mound of earth in the winter, and hives scattered all over it in the summer. It will take but a few minutes to slide 20 or 30 hives of bees in or out; and if the first tier of hives is a foot or so above the dry earth floor, and the rear of the hives 4 inches higher than the entrance, all the dead bees will roll out of and away from the entrance, and will not clog it, so that no care is required until about the first of March; then dead bees will accumulate. Warm and sultry weather may make it necessary to open the doors at night; but this is seldom required until late in the spring. I have tried underground and overhead ventilation, and discarded both, because neither works except in windy weather, just when you don't want it.

I now leave plenty of cracks in the outside door, and a few inches of space open, under the inside door; cover this hole with straw, to break the current; and should there be a long spell of cold windy weather, an extra bunch of straw stuffed between the two doors will prevent the escape of heat. The timbers, after being in use ten years in those caves, look like new—not a sign of mold on them.

I find that not more than a half of the space should be occupied by the hives in a repository that has no means for the escape of heat, for the bees will heat up a room surprisingly.

Savanna, Ill.

THOSE PERCOLATOR FEEDERS.

THE PHILOSOPHY OF THEIR WORKING FULLY EXPLAINED.

By Dr. C. C. Miller.

Sitting on a load of bees, on the way home from the Hastings apiary, I said to my assistant, "Suppose a vessel filled with sugar and water, with a hole at the bottom so small that a grain of sugar could not get through, would that act the same as one of our percolating feeders?"

She answered, "If there were a sufficient number of small holes it might; but with a single hole it couldn't get through fast enough."

"But," I said, "suppose the hole large enough so that the syrup came through just as fast as it comes through a percolating feeder. Would the syrup be just the same?"

She promptly said it would not; and when I came to get the matter formulated in words, I found she held the opinion that something in the line of filtration was necessary, and that the liquid must find its way by a somewhat devious passage through the meshes of a cloth or a mass of cotton. The same idea had been in my mind, and I think it quite likely that you, Mr. Editor, had the same thing in mind when you were in search of that colored individual in the fence. And when you struck upon old flannel instead of new, you felt sure you had found "the nigger."

Let me tell you about some experiments I have been making. Although made in the main too late in the season to feed bees, no actual feeding was necessary, for the removal of the syrup by the bees has nothing to do with the points I was after.

I took a baking-powder can, holding about a pint, and made a small hole in the bottom, of such size that cold water would pass through at the rate of about 7 drops per minute. Hot water would pass through much more rapidly. I put sugar and water, equal parts, in the can. A few drops came through very slowly, then it stopped altogether. A grain of sugar may have stopped the hole. I tried holes of larger size, but it seemed that any hole so small that it would not allow a grain of sugar to pass through was small enough to be entirely stopped by one of the grains.

Then I drove through the hole a two-inch wire nail. Of course, this would let grains of sugar through. To prevent that I covered the hole with a single thickness of thin cotton cloth that was new. Putting in equal quantities of sugar and water, it came through all right in good time. With twice as much sugar as water it made, of course, heavier syrup, but it took four or five days to get through. But I found that, the longer it was used, the slower it went through, perhaps from the fulling of the cloth. Very fine wire cloth, such as is used in milk-strainers, might be more uniform in action. Possibly, however, it may be that there is some other trouble.

Two months ago or more I put an equal quantity of sugar and water in a tumbler, and let it stand. In the course of a few days the water on top was a weak syrup, and the amount of sugar in the tumbler was perceptibly less, but after that time the change was slow; and the longer it stood, the slower the sugar seemed to dissolve. At this writing there is half an inch or so of sugar in the bottom of the tumbler, and a tolerably thick syrup over it. This shows that time is an important element in dissolving the sugar.

Now I'll tell you the conclusions at which I have arrived, although I don't feel that there is no possibility of mistake. When sugar and water are put together, there is a slow mixing; and in a little time the crevices between the grains of sugar are filled with a solution of sugar. Allowed to stand in that way, the water above is prevented from mixing with the sugar—at least, it does so very slowly, the upper part of the sugar gradually combining with the water above it. That was plainly shown in the last experiment mentioned, where it took weeks to dissolve the sugar.

Suppose, however, that, by some means, we remove all the syrup that fills the crevices between the grains of sugar. Water will come down afresh to fill the crevices, and in its turn will dissolve a fresh portion of the sugar. Now, that's exactly the principle we work upon in all of our percolating. We allow the syrup to pass out from below, through some sort of sieve that will allow only syrup and no grains to pass, and we manage so that it shall go through so slowly that the sugar at the bottom will have *time* to dissolve before the syrup passes through. I think that's all there is to it, and it isn't a question of cotton or wool, old cloth or new cloth. Old flannel isn't a whit better than new flannel, providing the space of new flannel is enough less so that the syrup goes as fast through one as the other. The only point is, to have your feeder or your crock emptied in the same space of time.

Six or eight thicknesses of cheese-cloth worked better than two or three. Why? Because the rim of the crock was uneven; and, when placed on the plate, a single thickness of cloth would do little toward filling the crack where it was largest; whereas, six thicknesses would fill it. If the rim of the crock were perfectly true and smooth, the case would be different. I filled a tumbler with sugar and water, put a single thickness of thin cotton cloth over it, then inverted it over a smooth tin dish. How fast do you suppose the syrup came through? Not a drop came, and I don't think it would if it had stood a year. If you tie a single thickness of cheese-cloth over a crock, then invert it over a plate, it will work all right providing the rim of the crock be just even enough and uneven enough. In general, it would let the water out too fast without giving the sugar time to dissolve; but in that case, if you put enough beeswax under the edge of the crock to make the syrup come out slow enough, I think you'd find it all right.

You said, Ernest, that sugar adhered to the proper bottom of the crock. What made you let it do that? Just give the whole thing a few shakes *after* inverting. In using the crock feeder, the cloth under the sugar plays no part, only that part that comes in actual contact with both crock and plate, and it would work all the same if the middle part of the cloth were all cut away.

It is quite possible that there is a double advantage in having the syrup come through slowly; and we who have been priding ourselves on having a feeder with which we could give 25 lbs. in as many hours may yet change our views. It may be that the bees need longer time to put the right amount of formic acid into their feed.

Marengo, Ill.

[For the percolating feeders on the hive, it is immaterial whether cheese-cloth, old flannel or new flannel be used. We get good results with all of them; but it does make a big difference, when percolating syrup by the B. Taylor plan, described in GLEANINGS recently (p. 803). As there explained, old flannel is decidedly better than the new.

Regarding the crocks, we found that they were better than inverted sap-pails, because of the very fact that their (the crocks') tops would be more or less irregular, while the pails would fit so closely as to make the feeding very slow. We got better results by discarding even the plates, and using boards; and if they are warped a little, all the better. On these the pails would give as good results as the crocks.

Yes, the sugar did adhere to the bottom of the crocks; but shaking, or, rather, a good thorough stirring, did not seem to prevent the slight residue of sugar entirely, although it tended greatly to reduce the amount.

Some have asked what was the principle upon which the percolating feeders work. I think you have given the philosophy of it, so that every one may understand it; but it may be well to add, that the percolators work on the atmospheric principle. In that respect they are similar to the Hains and E. France, or what is sometimes called, incorrectly, the Hill feeder.—Ed.]

ITEMS FROM SOUTHERN CALIFORNIA.

STORMS OF BEE-MOTHS.

By J. P. Israel.

Friend Root:—When the poetess wrote,—

> Leaves have their time to fall,
> And flowers to wither, at the north wind's breath,

she was not writing of the oaks of Southern California. The oak here is an evergreen — always green. There is no set time for the leaves to fall. In fact, when a leaf gets old the young ones push it out of the way, just as the young bees crowd the old ones out of the hive at swarming time. But with the oak this goes on all the time, winter and summer, so that the oak-forest is a perpetual green. Has all this any thing to do with bee-keeping? Oh, yes! very much indeed. The manzanita, willow, and oak, in the order named, build up our colonies and prepare them for the harvests that come only when mountain and valley are covered with the purple-white bloom of the black sage. But, listen, all ye sages, philosophers, and entomologists of the East, and I will give you a problem to solve that was never submitted to you before. I would solve it myself without troubling you, but it is about the only thing I don't understand.

Early this spring — remember, the trees are always green, and that our spring often begins as early as Jan. 1 — clouds upon clouds of bee-moths came down upon our oak-forests. Now, don't say they were *not* bee-moths. I know the gentleman well. I have slept with him and eaten at his board—or the place where he boarded. I have played hide-and-seek with him for twelve years. He did the hiding and I the seeking. Know him! Yes, I know him as well as I do my brother. In fact, he has stuck closer to me than a brother. Well, he came numerously and promiscuously—in clouds that whitened the air; in storms that swept over brake and bush; in cyclones that settled down into a calm only when it reached an oak-grove. Here they went to work. Every leaf was stripped from the trees, and the bloom too, if it had appeared. Many trees they left as bare as your oak-trees in winter. Others they did not touch at all. On some trees they left the bloom, and these now have acorns nearly ripe, and not a leaf on the tree. But the most of the trees that they touched they stripped clean of leaf and bloom. The same thing occurred in 1885 — another dry year, just like this.

FRAMES, EIGHT VS. TEN.

Am I a prophet or the son of a prophet? Did I foresee the great war that is now raging in regard to eight or ten frames? If not, how did I get on the fence twelve years ago, hugging to my heart nine frames, so that I now can fall into the arms of the victorious party? Come to terms, gentlemen — come to terms and end the war. Now, Mr. Eight, you put in just one more frame (it is not much to do), and meet your opponent half way. Very well. Now, Mr. Ten, will you not throw overboard one frame — only one? Why, you didn't kick against nine. Do you want your brother to do all the compromising? For shame, man! Give up one frame and end the war.

BEE-PARALYSIS.

No man can say a word against Prof Cook, and hold fast to my good opinion. Prof. Cook is always right, even when he is in the wrong. But I must differ with him in politics as to the cause of the "nameless bee-disease." Starvation is not the cause of it. I took out of my apiary over fifty hives last summer, in which the bees starved to death (you know we had no honey this year), and not a trace of the disease was found. In fact, I have now but one case of it—one hive—and that hive is heavy with honey. Three years ago you could gather up quarts of bees in front of almost any hive. I did nothing for them. I just concluded I was "busted," and let them go. But they "weathered the storm" till the flowers came. As the honey-flow increased, the disease decreased, and finally disappeared altogether. All my experience establishes two things: First, the disease will rage in a hive that is full of honey, therefore starvation is not the cause of it. Second, an inflow of honey, whether from the flowers or the sugar-barrel, will cure it; therefore Prof. Cook was right when he said feeding would cure it. But the full hive must be fed, as well as the empty one, to effect a cure of all.

Escondido, Cal., Oct. 24, 1894.

[I should like to know what Prof. Cook would say of those "storms of bee-moths." I know you are an old veteran, but are you *sure* those destroyers of the leaves were really and truly *bee-moths*, or were they something that *looked* just like them? You know the carpenter-bee *looks* just like the bumble-bee, but is quite different in habits and instincts.

Regarding bee-paralysis, Mr. Dayton, on page 828, explains pretty well how you and Prof. Cook may both be right.—Ed.]

APICULTURE IN GERMANY.

REPORT OF THE VIENNA CONVENTION.

By C. J. H. Gravenhorst.

The 39th annual convention of the German, Austrian, and Hungarian bee-keepers was held at Vienna, Austria, Sept. 3—5, 1894. More than 350 delegates were assembled, from Germany, Austria, and Hungary, and among them Dr. Dzierzon, of Lokowitz, Germany, in spite of his 83 years. After Pres. Ritter von Beck's address, Dr. Dzierzon, amid great acclamation, stepped up on the platform. He answered the question, "Whom have we to thank for the convention, and the exhibits thereof?"

Dr. Dzierzon said he had been a contributor to the *Bienenzeitung* (Bee Journal) for 50 years, and he could tell under what difficulties that paper was established. It had greatly favored the organization of this general movable convention, and all that has been gained by it. He said that, in 1853, he imported the first colony of Italian bees from Italy. This had proved to be of great importance. With the aid of the Italian bee he had solved many problems, as, for instance, the duration of life of the worker-bees; parthenogenesis, etc. Then Dr. Dzierzon praises the superiority of the Italian bees, as they gather more honey than any other kind. He does not understand why it is that there are bee-keepers who do not see this superiority. Without conventions and expositions, modern bee-keeping would not have spread so rapidly over the world, and the use of the movable-comb hive, honey-extractor, comb foundation, etc., would not have been so general as now. Finally, Dr. Dzierzon said that the most perfect movable-comb hive is his "Twin" hive. In behalf of the assembly, Baron von Ambrozy, of Hungary, thanked the venerable man for his good lecture.

F. W. Vogel, of Leitschin, Germany, the second speaker, endeavored to unite the three opinions of the bee-keepers concerning the origin of honey-dew. Some bee-keepers say that honey-dew is simply the product of plant-lice. This view was the oldest, and for half a century all bee-keepers had supported it. Other bee-keepers said, "No, there is no plant-louse honey; the bees do not gather the excrement of plant-lice. What they do gather in this line is only the juice of the plants, secreted by the leaves, and has nothing to do with plant-lice." Other bee-keepers were of the opinion that honey-dew is as much a product of plant-lice as a secretion of the plant itself. Vogel says there is a mistake about this. So far as he had observed, the plant-louse would suck the sap from the plants, and mix it with its saliva. In the chyle-stomach the sap is again mixed with the gastric juice, and then comes forth as a sweet sap, but not as excrement. According to Vogel's experiments and observations, all honey-dew is the product of plant-lice, and not a secretion. Bogdahn, of Germany, is of the opinion that the natural philosophers and microscopists must solve the problem as to whether honey-dew is the product of plant-lice or the secretion of plants, or both.

Dr. Dzierzon says: "The richest sources of honey-dew are the pine and fir trees. Linden and other leaved woods do not yield much honey-dew. The bark-beetle pierces the twigs of the pine and fir trees, then the juice comes forth out of the wounds. But this is not honey, and the bees do not gather it." The juice of the pine-tree is changed into sweetness, and this is done by the plant-lice and cochineal-kermes. The honey of the latter is very valuable.

Karl Gatter, Vienna, Austria, answered the question, "Has the old straw skep a right to be used?" "Yes," said he, "farmers should use the old skep, but only with supers, and if they do not know how to manage a movable-comb hive, or if they can not spare the time for a fall management of the latter."

Baron Ambrozy, of Temes Gyarmata, Hungary, replied to the question, "What are the gains in bee culture since Dr. Dzierzon's advent?" A great number of implements for bee-keeping have been invented, which in most cases do more to injure bee-keeping than to help it—for example, the drinking-vessels for bees, used in the hives. To give a colony of bees water in the hive in winter, or early in the spring, is, in most cases, not necessary. To use a heating-apparatus for raising bees is also useless. He could not recommend such work. The best inventions made were the movable-comb hive, the honey-extractor, comb foundation, and the queen-excluder.

Sept. 4, Metzger, of Neutra, Hungary, spoke of the anatomical structure of the honey-bee, and mentioned his theory that the queen is an hermaphrodite. The drone-egg is fecundated in the *receptaculum seminalis* of the queen, not with a spermatozoön derived from a drone, as is the case with those eggs which develop into a queen or worker-bee, but from a secretion in the *receptaculum seminalis* of the queen.

Pater Coelistin Schachinger, of Schœnbiehl, Austria, answered the question, "Is it advantageous to get bees from foreign countries?" He said it is not. The best bees are the native.

Dr. Dzierzon defended the Italian bee; and Mr. Vogel Letschin, Germany, recommended a cross-breed of two varieties. He is of the opinion that there only two varieties of the genus *Mellifica*—the Egyptian and the black German bee. Any other variety, as the Italian, Cyprian, Carniolan, etc., is derived from these two varieties. He had in his apiary a bee that could not be distinguished from an Italian bee. He bred it by crossing the Egyptian with the German bee. He had also bred a strain of bees like the Cyprian and the very black bee.

Guenther Gisperleben, Germany, confirmed what Dr. Dzierzon said about the Italian bee. He has had, every winter and spring, more losses among the Italian queens than in any other variety of bees; therefore he did not like the pure Italians. The many queenless colonies in spring were not profitable.

Pastor Fulde, Silesia, Germany, recommended a new specific for foul brood—viz., lysol. He has used it mixed with the food.

Guenther Gisperleben, Germany, answered the question, "How do the various hives affect the swarming of bees and the yield of honey?" He said, "Too small a hive would, of course, favor swarming — as, for instance, the old straw skep; but as for the movable-comb hives, as they have skillful managers the swarming fever could be suppressed in many cases by proper manipulation. To suppress the swarming fever entirely would be a great task, even in a very large hive; for such colony would swarm mostly at a time when the bee-keeper least desires it." According to a fundamental law of the increase of brood and worker-bees, large hives with larger frames, such as the German standard frames, have been recommended. These large frames have by no means done this year what they should have done, for the honey-flow failed. Mr. Guenther, with his German standard frames, has had a first-rate honey-harvest, while the fashionable bee-keepers, with their large frames, got nothing. He, as well as Baron Berlepsch, Dathe, and other prominent bee-keepers of Germany, had, formerly, larger frames. but soon learned by experience that this frame was not advantageous in more than one case. He and other German bee-keepers abandoned the larger frames, and their honey-yield confirmed the wisdom of so doing, during the lapse of years. Hence, he said, it would be best to hold fast to the German standard frames, and so much the more as this frame is within a trifle of being as large as the Langstroth, which is used by the greatest number of the most experienced bee-keepers of America.

The next convention will be held at Leipsic, Germany, in 1895.

The exhibit of bees, implements, and honey, at Vienna, was undoubtedly the best ever seen there, and showed the great progress that bee-keeping has made in Germany, Austria, and Hungary.

Wilsnack, Germany, Oct. 22.

NOTES OF BICYCLE TRAVEL.

AT DR. C. C. MILLER'S.

By Ernest R. Root.

That night, although it was rather late, and I had ridden 80 miles that afternoon, we sat up and talked. At a late hour I retired, and early next morning—yes, even before I was out of bed, some one came into the room while I was rubbing my eyes trying to make out whether I was on the wheel or where. The doctor, it seems, had been watching his chance; and as soon as I showed the least signs of awakening, he stood before me with a new self-spacing device which he had been studying over a good deal.

"Well, what do you think of it?" said he.

I blinked and stared awhile, and, for want of something better to say, I replied, "I don't know." On becoming fully awakened I concluded it might have some good points about it, although I did not like it as well as the Hoffman self-spacing arrangement such as we use. I wil not mention it in detail here, because the doctor will probably describe it later on.

After breakfast the doctor took up his record-book—the book in which he keeps the records of all his colonies, and we proceeded toward the apiary. He had lots of new fixings which he wanted to show me.

"Ah, yes, that record-book," said I. "You always have to think to pick that up before you go into the yard. What do you do when you get clear out into the apiary and find you have forgotten it?"

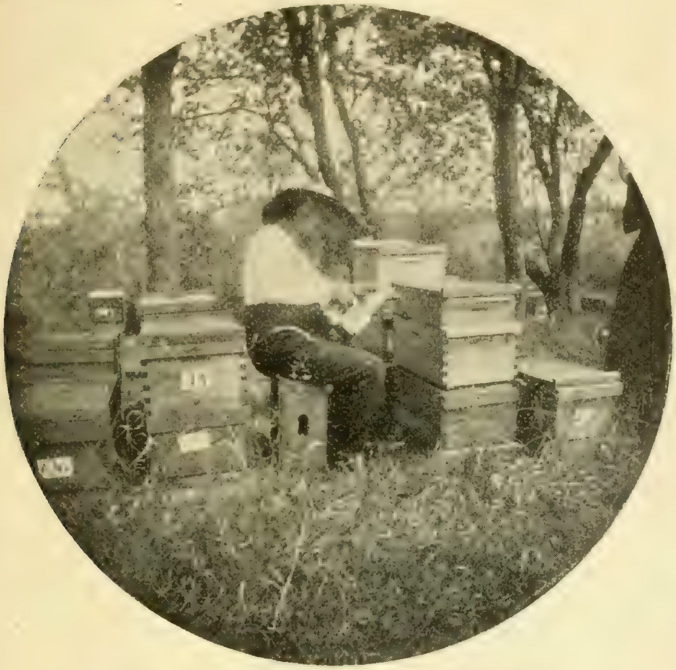

FIG. 1.—"I BELIEVE IN SITTING DOWN."

"Go back and get it," said he, comically.

When we were in the apiary we were joined by Emma, Dr. Miller's assistant in the apiary. After having lighted the Crane smoker, the first thing the doctor did was to go toward the hive that contained the latest percolator Miller feeder. Anticipating my visit, he had put it on the night before.

"And now," said he, "we shall see how it works," as he deliberately and comfortably seated himself on his "adjustable apiary seat."

"Ah! that is your seat, is it?" said I.

"Yes, sir, and I always believe in sitting down and taking things easy."

I will explain to our newer readers, that it is a box that is longer than wide, and taller than either one of the other dimensions. It has hand-holes cut in the several sides, so that it can easily be carried. When working over a tall hive it is set up the tall way, and so on. You see, it is adjustable to the different heights. Of course, I made fun of Dr. Miller for sitting down. Fig. 1, Kodaked by Emma, shows him as he sat working over that hive, preparing to pull the cover off.

He pried off the cover, but found the bees were not taking down the feed as rapidly as he had expected. Indeed, they had not even found it.

Right here it will be unnecessary to give the full discussion that followed, as that has already been in Gleanings regarding the percolator feeders. But I may say to you that the talk was an earnest one; and after we had looked over the feeder on the hive we withdrew to one side, as shown in Fig. 2. Here you see the doctor sitting down on his favorite adjustable seat, while your humble servant sat on his seat—his heel—and at the feet of Gamaliel, as it were, as he talked and explained.* You see we had before us a glass tumbler on a plate, and between us was the Crane smoker. At the back of Dr. Miller was h honey-house, work-shop, and bee-cellar, the opening to the latter appearing just over his hat. As you will notice, it is convenient to the apiary, which is just behind me, one bordering closely on the bee-cellar. Let me see. Just over the peak of Dr. Miller's hat you will see something that looks like brood-frames. I suspect that

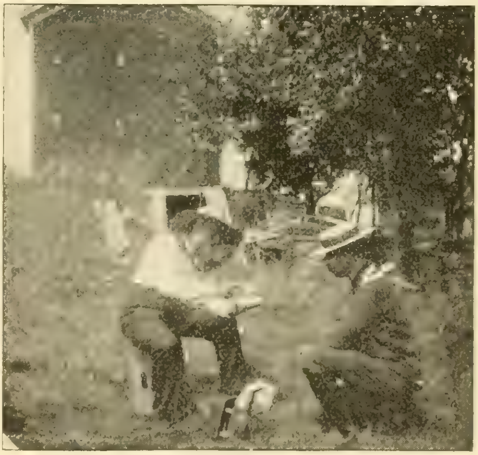

FIG. 2.—"YOU SEE, ERNEST," ETC.

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* I was dressed, as you see, for comfort in traveling—bicycle-sweater, Knickerbocker pants, long stockings, etc.

they are some that were discarded by Dr. Miller, who has been experimenting with different fixings.

While we were thus engaged, Emma amused herself by snapping the Kodak at us, for she did not propose to have *her* picture put in GLEANINGS. The three of us finally went back to the apiary, while I asked questions something after this fashion:

FIG. 3.—THE ROAD TO WISCONSIN.

"I see you have got numbered tags on your hives. Now, suppose you want to change the number; or suppose that a colony is transferred from one hive to another, and that you wish to keep a record of that particular queen and that particular hive."

"Why, just pull the tag off and put it on the other hive."

The nailhead was sticking out, and it was evident that this could be done very easily with a claw-hammer.

"Oh, yes! I see you don't paint your hives," said I; "and I see some of them, especially those not dovetailed, are gaping at the corners."

Then the doctor began to argue on the advantages of no paint—that the hive was warmer, etc., and without the paint the hives would last longer than he cared to have them; for at the end of 20 years he wanted something different, any way—that is, if he chose to follow in the wake of such young chaps as I; and then he began to score me for the changes that have occurred during the last ten years, as if *I* were to blame for the whole of them. But nevertheless I notice he was quite glad to adopt the modern fixtures and self spacing Hoffman frames. Yes, he even liked the working of that V edge, which, theoretically, looked like a poor arrangement. In practice it was doing a great deal better than he thought it would.

"I notice you have your hives arranged in pairs," said I.

"Yes, it economizes room," he replied. "And then, you see, in uniting in the fall it is just the easiest thing in the world. I remove one of the hives and put the bees in the other, moving this hive at the same time a little toward where the other one stood. The flying bees will, of course, enter the one hive. Then you will notice, also, that the two rest on one set of skids, and this saves hive-stands."

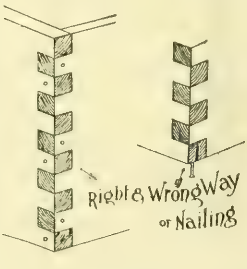
I had to confess that I liked that arrangement far better than the one we use in our own apiary, where we have hives grouped in lots of five, on the S. E. Miller plan; and I think now, that, when I set out another apiary, it will be on this same plan—two hives on one stand.

"Now, doctor, how do you like that Crane smoker?"

"It is a splendid implement."

"And the hinge—does that work nicely?"

"Beautifully; and I do not lose the nozzle."



After dinner the doctor and I repaired to the shop. Here he had quite a stock of supers and new hives, all ready for the honey-flow which did not come. But the thing that struck me particularly was the way he nailed his Dovetailed hives. He is generally right, and has good reasons; but in this case, in attempting to save nails he was spoiling the dovetail. The accompanying cut will show you the right and the wrong way. The wrong way is the one Dr. Miller used; and I am sure it is of so much importance that we call the attention of the general reader to it here, for others may be making the same mistake. When the nails are driven *through* one of the notches, surface side, into the *end* of the grain of the other board, there can be no splitting; but when it is driven through the *edge* of the notch, you will notice that there is nothing to prevent the dovetail from splitting. The doctor made a feeble defense in favor of his way; and although he did not *say* he thought I was right, I think he thought so.

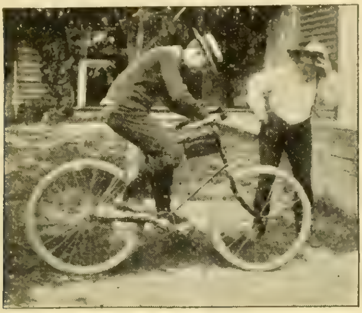


FIG. 4.—"SCORCHING."

The next day it became necessary for me to make my way off again. The bicycle was oiled up, and Dr. Miller showed me the way. Well, here is the result in Fig. 3, for Emma had the Kodak, and was recording things as they went on. Mrs. Miller stands in the background near the house. Your humble servant—well, you know who he is; and the doctor (for it was a hot day) stands pointing down the road, with his coat and vest off. The Miller residence shows in the background, but, unfortunately, it is a rear view. In spite of the weeds, mentioned by the small boy, the Miller home has a pretty approach along a winding driveway. Near the hitching-block stands Dr. Miller's horse that has seen many a day's service among the bees, and knows perfectly well what it is to draw bee-loads.

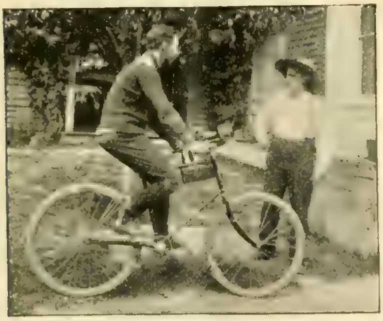


FIG. 5.—"ERNEST, I'M SORRY YOU ARE GOING."

After the doctor had told me the route that I was to take to get into Wisconsin I told him I would illustrate to him what "scorching" meant. Well, Emma has shown the result in Fig. 4, and the doctor is greatly shocked that I should ever assume such an attitude, which I confess I do in hill-climbing. As I started to leave, the doctor looked sober. Said he, as I was about to pull out, "Ernest, I'm sorry you are going. I have enjoyed your visit greatly. I only wish it might be longer."

Fig. 5 shows how sorry he looked as Emma caught us just as I was preparing to give the pedal a shove for Wisconsin and its bee-keepers. I might remark, also, that my position in riding is usually as there shown—neither a straight-up bean-pole position nor a scorch.

Some of my friends think that my recent sickness was owing to some of my long hard rides. I never felt better in my life; and if any one tells you that long bicycling, or such riding as I took, is injurious to health, just tell such a one that he does not know what he is talking about. It was not long riding, but *overeating* after I got home, caused by an appetite whetted up to a keen edge, that made me sick. You see, when I got down to hard office work and no exercise, those big dinners made mischief. There, now, I think I'll not confess any more; and my only excuse for referring to it is, that it may be a warning to others.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

CONTAMINATING QUEENS THROUGH HYBRID BEES AND ROYAL JELLY.

Question.—I have two colonies of hybrid bees in an isolated position, which I wish to have rear some queens from Italian larvæ by the plan given in your book. Now, if I supply the cell-cups with royal jelly from a hybrid colony, place larvæ in them from a pure Italian queen, and place these prepared cups in a hybrid colony for completion, will the queens hatched therefrom be pure Italians?

Answer.—In the first place, I object to the calling of our Italian bees or queens pure, for they are nothing but what would be properly called a thoroughbred variety of bees. This is proven in the fact that we have all shades and colors of these bees, from those having a golden abdomen nearly its whole length, to those which are so nearly black that it takes an expert to tell whether they have any Italian blood about them, only as it is known that they were imported from Italy—the very same place from which came the progenitors of the most beautiful bees obtainable in this country. Had the Italian bees been pure, in a sense equal to that of the pure German bee, no such change of color could possibly have come about by years of breeding for color. But, to the question.

I take it that the questioner is in doubt about the part played through the bees which prepare the food for the queen larvæ, he evidently having heard something of the old theory that was put before the bee-keeping fraternity during the sixties, of "like food, like queens." As hybrid bees will always give the best results in queen-rearing of any variety of bees with which I am acquainted, except the Cyprians, I use them very largely to feed and perfect queen-cells, and, after years of careful watching, and with years of success in perfecting as yellow bees as can be found in the world, I fail to find wherein the food has any thing to do with purity of stock or the changing of the color or the disposition of the progeny of any queen in the least. If royal jelly prepared by black or hybrid bees could contaminate queens of the Italian race, surely the same food prepared by the brightest of the golden Italians would contaminate the black or German race of bees. I have proven by experiment that black queens brought to perfection in yellow Italian colonies are not in the least degree different from those nursed by their own "blood," hence I feel that I am justified in going on record as saying that the queen progeny of any race or variety of bees are in no way changed as to markings, disposition, etc., through the food given them. If there are those among the readers of Gleanings who think otherwise, I should like to have them tell us upon what they base their conclusions. While these nice points are of interest only to queen-breeders, in a dollar-and-cents way, yet they are helpful in making up the general fund of bee-knowledge which we are handing down to future generations; hence I believe Gleanings will be willing to give all the best thoughts on the matter which may be sent in.

EARLY REARING OF QUEENS.

Question.—How early in spring can I commence to rear queens, taking the stage of advancement in drone-rearing as a guide? In other words, if I commence to raise queens when I see larvæ in drone-cells, will drones be on hand to meet the queen when she is ready?

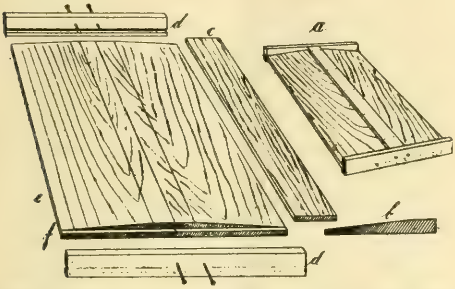
Answer.—If you use any of the plans by which larvæ from 24 to 36 hours old are given to the bees from which to rear queens, your queens will hatch in from eleven to twelve days from the time you start the cells; as the rule for a queen is, three days in the egg form, six days in the larval form, and seven days in the chrysalis, making a period of sixteen days from the egg to the time the young queen emerges from the cell. Very warm weather will hasten the development during all stages, to a slight extent; while very cool weather, or inactivity with the bees, as in the fall of the year, retards this development. I have never known this development to be hastened to a greater degree than having the queen hatch in 15½ days; but I have had it so retarded in the fall of the year, especially where queens were reared in upper stories, that they did not emerge from their cells, or become fully mature, till 20 days from the time the egg was laid by the mother-queen. But, as I said before, 16 days is the rule, and it is one which can be depended upon in 19 cases out of 20. As a rule, the young queen does not go out to meet the drone till she is from seven to eight days old, so we have the time as being from 17 to 20 days from the starting to rear queens to the time they would naturally become fertile, where every thing is favorable. Occasionally a queen will fly from the hive, evidently in search of the drone, when from four to five days old; and I have known them to be 28 days old before becoming fertile; but in nine cases out of ten, queens are fertilized when from seven to eight days old, and commence to lay when from nine to ten days old, when the weather is favorable. If the above is correct, and I believe it is, then it will be seen that we shall want flying or mature drones in 17 days, at least, from the time we start our queen-cells. Now, I have not as carefully observed the time of the maturing of drones as I have that of the queens; but my impression is, from what I have experimented along this line, that the drone is in the egg and larval form about 10 days, or one day longer than the worker, and about fourteen days in the chrysalis form, making a period of 24 days from the time the egg is laid to the perfect drone. From six to eight days after the drone emerges from the cell it goes out for its first flight, to void excrement, etc., similar to what the worker-bees do, which we call their first play-spell, during which they mark their location also. After this first flight they go out every pleasant day from 12 M. to 3 P. M., to meet the queens, if any are to be found, so that we have about 32 to 34 days from the time the queen lays the eggs in the cells for the drones, to the time they are ready to meet the queens. As we had from 17 to 20 days from the time we commenced to rear queens to the time the queen would go out to meet the drones, it will be seen that the drone eggs should be laid 17 days, at least, before we start to rear queens, and this would bring the time to where the drone brood would have been sealed six or seven days. I never commence to rear queens till plenty of sealed drone brood appears in my drone-rearing colonies; while the rule I adopt is, not to commence to rear queens till the eyes of the chrysalis drone commence to change from the white color of said chrysalis while in its first stages, to the purple color of its later stage. Very early queen-rearing generally results very unsatisfactorily in this locality, as the colonies used for this purpose are very much retarded about building up, and the queens do not come up to the standard of perfection unless great care is used in seeing that all the requisites of a perfect development are present, which is well nigh impossible during March, April, and May.

TRADE NOTES
BY EARNEST R. ROOT.

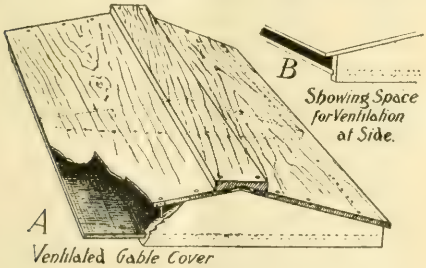
IMPROVEMENTS IN HIVE-COVERS, AND DIRECTIONS FOR NAILING.

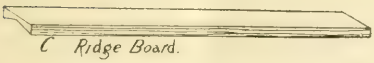
Among the improvements adopted for our Dovetailed hive for the coming season is the changed construction of the covers. This was mentioned in a recent issue. We are now prepared to show you detailed illustrations of both the "Higginsville" and "Ventilated Gable" cover. In doing this we make extracts from our new circular packed with each lot of five hives, giving directions for nailing. After giving directions in regard to bottom and body of hive, with frames and division-board, the directions proceed as follows:

If you did not specify the kind of cover in your order, you should have material for the Higginsville cover.

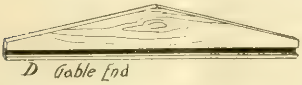


Two boards, 7¼x21, beveled as at *b*, and rabbeted 3/8 at each end as at *f*. Place the two thick edges together, and nail to each end a cleat with 3/8x3/8-in. groove. Use two 2½-inch or 8d casing nails in each end, as shown. Nail on the cap-piece *c* with eight 1-inch nails, and the cover is complete as at *a*. The reason for driving only two nails near the center, through the cleat, into cover or bottom, is, to allow for shrinking or swelling in the grooved cleat from either side, without splitting the board.

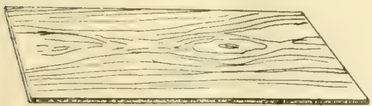




C Ridge Board.

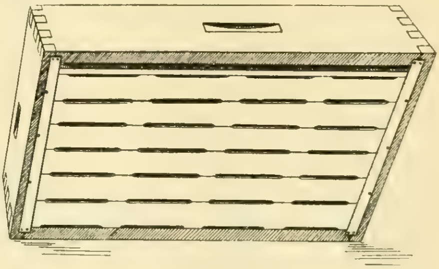


D Gable End



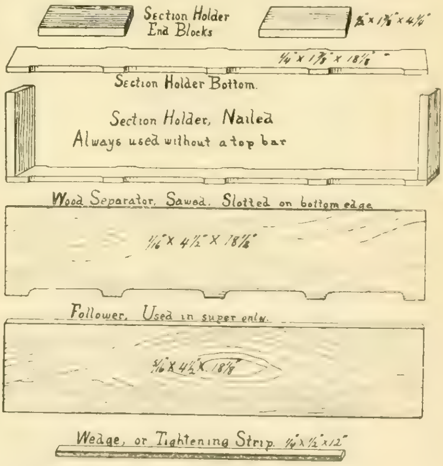
E Cover Board

If you ordered the ventilated gable cover you will have material as follows: Two gable ends, *D*, grooved for under board; two cover boards, *E*; one thinner gable piece for center, to strengthen the cover. To nail, first drive three 1½-inch or 4d casing nails through each end of cover-board into gable end, as shown. Be careful, in driving the nail nearest the outer edge, not to get the point into the groove, and thus interfere with sliding the under board into place. By spacing these cover-boards near or far apart under the ridge-board you can make the cover project at the sides or not, as you prefer. The side should be projected ½ to 1 inch beyond the end of gable end, as at *B*, so as to prevent a driving storm from beating in on the under boards. Nail the ridge-board from above with a 4d casing nail in each corner, and on the under side by eight 1-inch nails, four through each cover-board, into the ridge. Nail the center gable piece with two 4d casing nails, through each cover-board. Now slip the two thin boards, ¼x7x20½, into the groove in the gable ends, and drive one 1-inch nail from the bottom of the gable end through the inside corner of each board at each end, also through the middle inner edge into the middle gable. This method of nailing leaves these boards free to shrink toward the center, without splitting, and keeps the crack between closed. If your hives are No. 1 or 2, 11 or 12, with section-holders for the super, then you will find two tin strips, about ⅝-in. wide, for each super. Nail these to the lower inside edge of the ends of the super, to support the section-holders, thus:



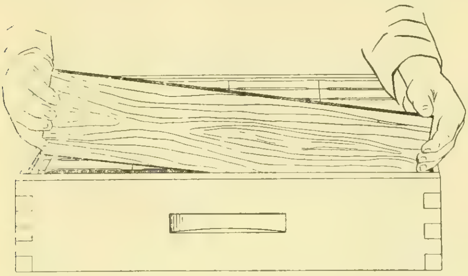
Use about seven 1-inch or 2d fine nails in each strip, as shown.

You will also have section-holders for the super.

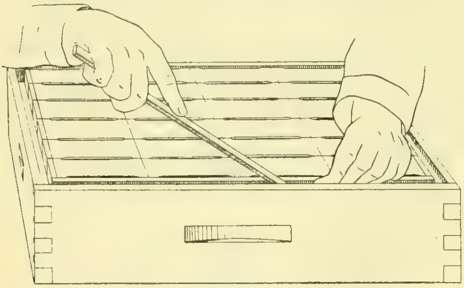

Section Holder End Blocks
⅝" × 1⅝" × 4¼"
¼" × 1⅞" × 18⅛"
Section Holder Bottom.
Section Holder, Nailed
Always used without a top bar
Wood Separator, Sawed. Slotted on bottom edge
1/16" × 4½" × 18½"
Follower. Used in super only.
5/16" × 4¼" × 18⅛"
Wedge, or Tightening Strip. ¼" × ½" × 12"

Please notice that these section-holders have no top-bar—simply a slotted bottom nailed to two end-blocks, as shown above. Use two 1-inch nails in each end.

Having your sections folded, and starters inserted, place four in each section-holder; then put 6 of these in each eight-frame super, with 5 slotted separators, one between each two section-holders, and slotted edge down, resting at the ends upon the tin strip, as shown above. Then insert the follower, thus:



Then the wedge, or tightening-strip, thus:



Place it between the follower and side of super diagonally, so as to wedge the contents of super tight, and prevent the bees from chinking in propolis between the separator and edge of section.

By
E R
Root
Editorial

WE have just made some twelve-frame Dovetailed hives for an order. Compared with the eight-framers they are "whoppers."

WE are going to give the sealed cover another trial this winter—on a smaller scale, however. Our basswood apiary stands on a sort of hill, exposed to the full sweep of the west wind. Half the colonies are under thin boards sealed down, and the other half under absorbing cushions with the Hill device.

WE have recently increased our boiler capacity, for running our plant, to 180 horse-power, and it seems now necessary to add to our engine capacity to aid us in making the new sections. We have also put in a new and expensive boiler-feeder. It feeds automatically three boilers at a time, and at the same time removes and prevents scale formation, or is supposed to do so. We have also made some recent additions in the line of some fine and expensive wood-working machinery. We believe now we have the best and largest equipment for the *modern* method of making sections in the world. We can turn them out easily at the rate of 75,000 a day, and, if necessary, increase the output to over 100,000, and all the sections of the new and polished sort. I believe that we have omitted to mention that, among our other improvements, has been the addition of a $700 paper-folder for folding GLEANINGS, A B C book, and our catalog.

COFFEE A SUGAR SUPERIOR TO GRANULATED.

WE have been taught, for a number of years back, and had come to accept it as a fact, that granulated sugar was the purest and best of all sugars for table use; that coffee A was good, but not so pure as granulated. I was quite astonished to read in the last *Ladies' Home Journal*, under the head of "Making Candy at Home," by a writer who is evidently expert in such matters, the following: "When making any kind of candy it is best to use, when it can be obtained, coffee A instead of granulated, as it is nearly always purer. Select only sugar that is dry, uniform in quality, with hard, sparkling crystals." This last would seem to apply especially to granulated, as coffee A is liable to be moist at times. Who among our readers can give us expert testimony on this question? I presume there is no very great difference between the two sugars; but if there is a difference, let us take that which is best when the price is practically the same.

THE FOLLY OF LIFTING 20-LB. STONES; ENAMEL CLOTH NOT NECESSARY; HIVE-COVERS, ETC.

I ALWAYS have a feeling of pity for the man who will use a 20-lb. stone on his hives, to hold down a shade-board or cover. If you go into his apiary and watch him work he will lift off this big stone, and drop it on the ground with a thud; off comes the shade-board, then the cover, and finally the quilt or enamel cloth; and this latter is where the whole trouble lies. The use of thick-top frames, ¼-inch bee-space, and a cover that is flat, at least on the under side, renders a quilt superfluous and an unnecessary expense. Without it the bees will fasten the cover down so it will never blow off, but not so tight but that it can be easily removed. But I suspect that many use cloths because they will stick and hang to the thin and narrow top-bars with their attendant burr and brace combs. If I had to use such old-fashioned brood-frames, I think I too would use the enamel cloth. But there is a far better and simpler way. If it is unnecessary to use a 20-lb. stone to hold the cover down, how about the shade-board, that bees can not fasten down with propolis? In the first place, if I could not have shade I would make the shade-board part and parcel of the cover, leaving an air-space between it and the cover proper. At the present prices of honey, and its disposition to go downward rather than upward, it does not seem to me than any bee-keeper can afford to lift 20-lb. stones. We have lifting enough to do in the handling of supers and hives full of bees, without handling heavy boulders.

THE A. I. ROOT COMPANY.

THE friends will notice by our price list and stationery that the above title to our business takes the place of simply "A. I. Root." Perhaps I may say that no new method of management will be introduced, and no new members are to have any thing to do with the business. It will be conducted as it has been heretofore, by A. I. Root and his family, including the son-in-law, Mr. J. T. Calvert, who has been for many years business manager. A. I. Root, besides being president, will, for the present, be by far the largest stockholder; Ernest R. Root, vice-president; J. T. Calvert, secretary and treasurer. The principal reason for making this change is, that the business may go right on uninterruptedly in case of death or accident to the founder, A. I. Root. We as a family do not desire the intervention of law or lawyers to settle up our business in case of death to one or more of us. The present magnitude of our business renders it impossible for A. I. Root himself to even read all the correspondence; but where any letter seems to be directed to him personally, or where there is a request that it be handed to him at once, it will always go into his special tray. I wish that I could add that it would always receive a prompt and fitting answer; but, dear friends, that is beyond my power. Almost hourly I am called on to decide which matter that lies before me is of the greatest importance. A. I. R.

A MODERN HOUSE-APIARY; A SUCCESS IN THE HANDS OF F. A. SALISBURY.

WE have just had a very pleasant visit from F. A. Salisbury, of Syracuse, N. Y., the one who handles our Eastern Branch. He is one of the bright and enterprising bee-keepers of York State. Among other things, he is using a house-apiary after the plan of the one used by H. P. Langdon. He is well pleased with its working, and thinks he can handle a greater number of colonies with less labor than by the outdoor plan. The modern bee-escape makes many of the manipulations in the house, that were formerly impracticable, now perfectly feasible. He took off all his comb honey with the escapes. The hives are all in easy reach of his tools, and the windows are arranged for the easy escape of the bees in case they should get out in the room. In feeding up for winter he simply pours into his extractor sugar and water of equal proportions, sets the thing running for a few minutes, and, as he says, draws off clear syrup. How a percolator feeder can give a better article he can not imagine. He is certain that his syrup makes a good winter food, because the bees have been wintered on it successfully three or four winters. He could not understand why we should fail to get a syrup by the same plan. I now think the trouble was because we did not give the plan a thorough enough trial.

Well, this fall the syrup was made in the house-apiary, within a few feet of the colonies to be fed, and yet out of reach of robbers. It was then drawn off into feeders and put on to the hives, and the whole job almost within arm's reach. All the feeding was done in a surprisingly short time, as, indeed, any operation is in his modern house-apiary. He has made some changes on the Langdon plan, and has promised to send us a photograph, giving an inside and an outside view. As Mr. Salisbury secured a big crop of honey, and some of his neighbors got little or none, I am sure we shall all be interested to know more about that house-apiary.

GOOD NEWS FOR TEMPERANCE WORKERS.

OUR readers will remember that, in our issue for Oct. 1, p. 772, I mentioned the gin-palaces so thickly grouped about the Soldiers' Home at Dayton, O. Well, I am very glad indeed to give place to the following, which I clipped from the *Ohio Farmer:*

> The Ohio supreme court decided last week that all saloons within two miles of the Dayton Soldiers' Home must be removed, as the State law is constitutional.

THE NEXT NATIONAL CONVENTION AT TORONTO.

I see you were present at the late convention held at St. Joseph, which appears to have been eminently successful in spirit if not in the numbers present. I am glad Toronto has been selected as the next place of meeting. At no other place in Canada can a meeting of this kind be made so successful. Its accommodations and attractions surpass those of any other town or city in Ontario, especially to strangers. It is within three hours' sail of Niagara, which is historically interesting to both Canadians and Americans as being the battle-ground of one of the severest conflicts of the war of 1812. The town of Niagara is but a few minutes' run to the Falls, over the electric railway, the power for running which is generated by the great cataract itself. If the convention be held during the Industrial Fair, very cheap rates will be had, as one of the days on which it is held is known as "American Day," when extremely low rates are made by arrangements of the fair's managers, over the principal railroads of the United States. The fair itself is well worth a visit, being the best annual show on this continent — perhaps the best in the world. As an evidence of the truth of what I say, I send you a copy of its Prize List. It is that of 1891, as I have none of a later date at hand, and the last is the best. On page 50 you will see the liberal prizes its management offer for honey alone.

R. McKNIGHT.

Owen Sound, Ont., Nov. 3, 1894.

NOTES OF TRAVEL

BY A. I. ROOT.

When the poor and needy seek water, and there is none, and their tongue faileth for thirst, I the Lord will hear them, I the God of Israel will not forsake them. I will open rivers in high places, and fountains in the midst of the valleys; I will make the wilderness a pool of water, and the dry land springs of water.—ISA. 41:17, 18.

While at the bee-keepers' convention at St. Joseph, the following letter was handed to me.

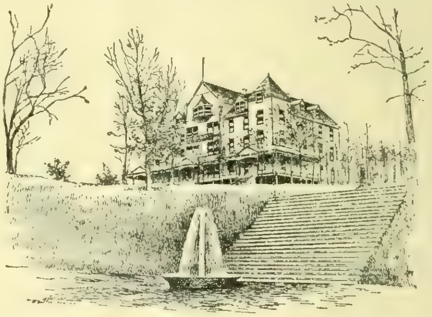
Friend Root:—I see by GLEANINGS you are coming from Kansas City to Lebanon, on a bicycle. We are on or near your route. You will come through Clinton. It is on your way, and you will want to see its artesian wells—three of them; then come southwest out of Clinton by the standpipe, and across the wooden-covered bridge over Grand River, and on across the prairie; then across the Deepwater bridge. Stop at the first house on the road west of the Dunkard church. It is eight miles south of Clinton. We are not extensive bee-keepers, but have a few stands, and some honey and milk. We shall be very glad indeed to have you come, and shall feel disappointed if you don't. Mr. Bonham lives across the street from the standpipe. He is a bee-keeper and nurseryman. Come and see *us*, any how. You can not miss the road.

Deepwater, Mo., Sept. 10. J. A. STEVENSON.

Of course, I accepted the invitation for the sake of seeing the artesian wells, even if for nothing else; but imagine my disgust on discovering, as I neared Clinton, that the letter I was depending on to guide me had been sent by express with my heavy suit of clothes! I remembered about Clinton and the wells, and also that my friend lived at Deepwater, near Clinton; but I could not, for the life of me, recall the name. I thought, however, that I should be able to hunt him up. When a few miles from the city of Clinton, along the bank of a beautiful river I saw some large hickorynuts, even right out in the road, where it wound along through the woods. In fact, there were so many of them that I had to dodge them with my wheel; and some of them, even when they were shelled out, were nearly as large as hen's eggs. I finally stopped, gathered my hands full, and sat down on a log to see if those great big fellows were as good as the thin shellbark hickorynuts of Ohio. I should say they were every bit as good, except that they have a little more of the flavor of blackwalnuts. It made me think of the time when we used to have hickorynuts and cider, away back forty or fifty years ago. Then I began thinking how I should relish some sort of tart fruit with the nuts. Perhaps it was this thought that caused me to look about, and up over my head. Sure enough, there were wild fox grapes hanging so near that, with a very little pulling on the vine, I got them down within my reach. And then I had a "picnic" indeed on nuts and grapes. A few minutes later a nutting-party came in a large wagon, from the city. I scraped acquaintance, and told them where I had seen some beautiful large nuts shaken down by the wind. These friends assured me that I could easily find the artesian wells, for one of them was close by my road as I would come into the city. The city stands on quite a little elevation, and this first artesian well is on a flat by the side of the river. An iron pipe, pretty nearly as large as a stove-pipe, reaches three or four feet above the surface of the ground. From this pipe comes a beautiful little circular waterfall, making a crystal vase, such as I have before described, except that, in this case, the volume of water is so great that the crystal sheet is nearly an inch through. The water is caught in a circular reservoir, and then passes off in quite a good-sized stream along the side of the road, and down to the river; in fact, it has spread in some places so as to make quite a quagmire; and I think the citizens of Clinton should be able to send a man with a spade, so as to let this water off without making mudholes where it is not wanted. The water is, I should judge, nearly soft, and of that same crystal clearness that comes from most artesian wells. I had been so long drinking bad muddy water from imperfect wells or pond-holes along my way that I greatly relished the change.

I was told, however, by different people, that the largest and finest artesian well was at the other end of the city. It was much like the first, except that the water is carried up perhaps ten or twelve feet high. I presume it usually forms a most beautiful waterfall; but the wind blew so much the day I was there, it was scattered a good deal out of its appropriate reservoir.

Below I give you a cut showing a faint glimpse of the great hotel, and the flowing well at the foot of the broad staircase leading to it.



ARTESIAN WELL AT CLINTON, MO., FLOWING A MILLION OF GALLONS OF WATER PER DAY.

The volume of water is so great that it forms a pretty little artificial lake—a lake large enough, indeed, to contain a little steamer for pleasure-parties, and quite spacious buildings have been put up for bathing and other purposes. I clip the following from a descriptive circular:

We have here an artesian well flowing one million gallons every day, of white sulphur water, which glistens in the warm sunlight like a tear framed in a smile, and which is equal in health-restoring and health-giving properties to any sulphur water in the world. This well feeds a beautiful lake which affords fine boating and bathing, and which is well stocked with game fish.

The water from this largest well is impregnated with sulphur to such an extent that it shows the white milky filaments (so often seen in sulphur springs) adhering to the stones and gravel in the bottom of the stream where it goes out into the lake. The sulphur is too strong to make it agreeable to drink; but, like other waters of this class, it has quite a reputation for its medicinal qualities. The third well is much like the second one described, only smaller in volume, and this is used for the city waterworks.

Mr. M. L. Bonham and Mr. H. P. Faris, the latter being the gentleman who originated the idea of boring at Clinton, Mo., have kindly furnished me the following additional facts as below, in regard to their famous artesian wells:

THE FAMOUS WHITE-SULPHUR ARTESIAN WELL AT CLINTON, HENRY CO., MO.

This is one of the most wonderful wells in the world, and was the result of drilling commenced by a local company in search of gas or oil. July 8, 1887, at the depth of 325 feet a slight flow of sulphur water was struck; continuing to a depth of 400 feet, a very strong flow was gained, equaling, probably, about half a million gallons per day. An eight-inch bit had been used to this depth. From there the bit was changed to 5¾-inch, and drilling continued to a depth of 800 feet, tapping several veins of magnificent water without any evidence of sulphur in connection therewith.

Both waters are now flowing together, and the analysis herewith shows that, for certain diseases, such as kidney and stomach trouble, blood disease and skin eruptions, these waters are a sovereign remedy. The flow is estimated to be in excess of 1,000,000 gallons every 24 hours. It is largely used in connection with the city waterworks system, as well as for hot and cold baths, in bath-house proper, for boating, fishing and swimming in the lake supplied by the overflow from the well.

The supply seemed to increase the further down they went. The most of the distance was through a very hard white flinty rock. By inserting a pipe, the flow diminishes very rapidly, and at about 30 feet high it ceases altogether.

The following analysis of the water has been furnished by Mr. Arthur Winslow, State Geologist, who has calculated both as parts per 1000 and as grains per gallon of 131 cubic inches.

SOLIDS.	Grains per gal. of 131 cubic inches.	Parts per 1.000.
Potassium chloride	1.85	.0317
Sodium chloride	62.32	1.0653
Magnesium chloride	4.40	.0752
Calcium chloride	.08	.0014
Magnesium carbonate	6.45	.1103
Calcium carbonate	10.26	.1754
Calcium sulphate	9.12	.1561
Silicia	68	.0117
Total solids as found	95.61	1.6271
GASES.		
Carbonic acid	10.23	.1741
Hydrogen sulphide	.24	.0048

* * *

Now, unless I come across bee-keepers, or somebody who knows of me, so I can get acquainted a little, I often, in these travels of mine, have a strange feeling of homesickness. I, for one, do not enjoy the feeling of being a stranger in a strange land, and somehow or other I get to thinking at such times that I am away off where nobody knows me or cares for me; and I get to wondering whether I am not, in one sense, leading a sort of tramp life, leaving the boys at home to bear the burdens, and rambling about where I am not wanted or needed or called. I had this feeling considerably while at Clinton. I had seen all the wells, and I felt in a hurry to get home, or to get to Lebanon, where Mrs. Root and my relatives were waiting and watching for me. I finally decided this was an unmanly spirit, and a wrong spirit. I shook off the feeling, and stepped into the door of the pumping-station whence water was sent over the city. I did not feel much like talking, but I felt it a duty to make an effort, at least, to be sociable.

“My friend, don't the people of Clinton object to drinking water with this strong sulphurous taste and odor?”

“Oh! no, sir; for you must understand that the water flows from the well into this large high reservoir. After standing here a few days, exposed to the air, the taste and smell are all gone,* and it is simply pure water, almost soft.”

After this we had quite an animated talk; and when I found him so willing to show me his machinery and tell me all about it, and these wonderful wells, I forgot my homesickness, and really began to feel that I was not only “A. I. Root,” but that I was indeed “*Brother* A. I. Root.”* When I told him where I lived, and my name, there was another of those big surprises that so often startle me. Said he:

“Why, Mr. Root, you must surely stop a little while and see my father. He lives right up there by the great standpipe. He is not only a bee-keeper, but he has a greenhouse, and is quite a gardener. He used to take GLEANINGS, but I believe he does not just now; but notwithstanding that, he will be very glad to see you.”

Perhaps one thing that made me homesick was, that I was needing one of my naps. So many days wheeling over the hills and rocks was beginning to tell; and after I had shaken hands with friend Bonham I begged the privilege of lying down for fifteen or twenty minutes before I visited very much. In fact, at such times it is almost impossible for me to visit, even if I try. I wanted to make Deepwater before dark, and so both nap and visit were necessarily short. I found friend Bonham not only a bee-keeper, florist, and gardener, but a real Christian gentleman; and I was sorry to be obliged to make my stay so brief. Of course, I inquired about the bee-keeper at Deepwater, but he could not recall the name. He said that, while I was taking my nap, he would be sure to think of it; but I suppose he was much like myself—names get away, and sometimes they won't get back, no matter how hard you beckon and call. I had to start off on my wheel, without knowing the name of the friend who had given me the courteous invitation given in the letter at the commencement of this. Before I reached Deepwater, night came on; and in going down a hill, and across one of the bridges mentioned in the letter, I had another fall. But this was my last one on the Missouri trip, for I decided I should have to stop riding at night unless by moonlight.

Deepwater looked very pretty and inviting to me—especially the *lights* of the little town did, after my wheelride in the thick darkness. After supper I made inquiries for the bee-keeper whose name I could not recall; but nobody seemed to know just such a man. Several kept bees, but they did not take GLEANINGS. Finally, when I heard church-bells ringing, I gave a boy a nickel to show me the way, and I was soon seated in a Presbyterian prayer-meeting. The old feeling of loneliness came on, but it quickly gave way when a young man who sat beside me put out his hand and said a friend of his once induced him to read the A B C book clear through. His name was Hess, and he said it was a great pleasure to him to see face to face the man who wrote that book. The friend who loaned it to him was a member of their church, and was very rarely absent during the evening prayer-meetings. He offered to take his horse and buggy, and go with me in the morning to see him; but it was back in the opposite way from which I wished to go; in fact, I had passed his home in the darkness of the night; and, besides, as nearly as I could

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*The friends will remember that, while at the hot springs in Arizona, I got hold of the theory that the heat was caused by the waters of two or more springs, containing different chemicals, mixing together somewhere in the interior of the earth. Well, this theory was considerably upset at San Jacinto, where I found them running the hot water into a large tank to let it cool off so it could be used for drinking, etc. Now, the hot water tastes strongly of chemicals; but after it had been exposed to the air, and had become cold, it was simply *common spring water*. Well, here in Clinton, Mo., we find the strong sulphurous taste also disappears after the water has been exposed for a sufficient time to the air. Now, then, the chemicals that make the water hot, as well as those that give it the sulphurous taste and odor, seem to be volatile gases that disappear when exposed to the air. I wish somebody who is versed in this department of science would set us right in regard to the matter.

*See page 918.

gather, the man who wrote me the letter lived at *Browningtou*, on the road to Lebanon; and I felt as though I did not dare to take another hour, else I should not be able to reach my destination Saturday night. At Browington I found a Mr. Stevenson who was a bee-keeper; but *he* did not write the letter. Perhaps I may explain now, that, when I got through, I pulled the letter out of that pocket, and was greatly chagrined to find that it was from the friend of Mr. Hess, whose home I passed in the night about the time of my fall, and whom I missed once more because he happened to stay away from the regular prayer-meeting just one night.[*] How queerly do things sometimes turn out!

In order to save time I wanted to take a bee-line across the country, to Lebanon. But men who had been over the road shook their heads; and just as I was starting wrong somebody told me there was a great river ahead, with no bridges. When I came into the beautiful little place of Osceola, the county seat of St. Clair Co., I found the Osage River large enough to carry a good-sized steamboat. I felt a little glad I had listened to the advice of those who knew what they were talking about.

At about this point I began to be greatly pleased to discover I could lie down and take a nap right before an open window, even with a strong breeze blowing right in my face. The outdoor exercise had so far cured me of chills and every thing of that kind that I often slept thus for half an hour, *covered with perspiration*, right in my shirt-sleeves, and with my head uncovered.

In many of the country places where I stopped, the people were in poor and humble circumstances. At one point there was a little rain—enough so I stopped and chatted with an old lady who was spinning with an old-fashioned spinning-wheel. I was in a hurry to go on, but she said she thought I would get wet. I suggested that I could find a house on the road if it rained very hard. She replied, however, that I would not pass another house on the road till I had gone about *seven miles*. A little explanation may be necessary here. The roads through those Ozark Mountains are mostly on the ridges, unless it becomes necessary to cross a stream. Well, although the ridge is the best place for a *road*, it is not the best place for *farming*, and accordingly farms are from a quarter of a mile to a whole mile off the road and down in the valleys. You can not see the houses, because the road crooks around through the scrub-oak, and is oftentimes little more than a cowpath.

After I left Osceola, people were greatly surprised to see a man on a wheel. If somebody happened to look out of the window and see me, I usually discovered, by looking back, that the whole family were out by the road watching me until I was out of sight. The horses, cattle, and other domestic animals, were also greatly frightened by the wheel. The cows (*and mules too*) generally have a cowbell on the leader of the herd. Well, every little while a whole drove of horses or cattle, or sometimes both, would break into a regular stampede, and go off down into the valley, as if they had seen an apparition. I could judge of the rapidity of their movements, and the distance they went, by the demoralized jingling of the cowbells. When I got further out into the region where there were no railroads, it was almost impossible to pass a team without dismounting, they were so liable to become unmanageable. In these wild roads, riding horseback is the most common; but although the riders often assured me pleasantly that they could manage their steeds, urging me to go ahead, I generally had to dismount. I remember that, at one place, where I finally succeeded in passing a team, a little yellow dog was following behind the wagon; but when he caught sight of me he turned, and ran and ran as if he thought the whole of pandemonium was coming. Finally he decided to stop and take another look; but this second look, however, seemed to be worse than the first, for he ran until he came to a cross-road, and then up the cross-road he went as if possessed. The last I saw of him he was peering over the top of a hill to see if I were safely out of sight.

I tell you, there is a wonderful contrast where you go through a country where the people and animals have become somewhat accustomed to wheeling. Well, through this wilderness I did not always find places for sleeping and eating, such as I had been accustomed to. Now, I am not complaining, mind you; for these good people tendered me the best they had, and oftentimes refused to take any recompense unless I tendered it to the children. When I explained at one place that I needed a little rest, and would like to lie down a few minutes, the good woman said I would have to climb a ladder to get into the loft. I asked permission to raise the window, for I can seldom sleep without a great plenty of air. She replied, "Oh! you won't need to hist any winder, stranger. I reckon you'll find all the air you need, without any of that."

Sure enough, the holes through the shingles and siding were so numerous I was quite happy in that respect, without any trouble on my part. One afternoon, however, I longed for a nice clean room, and for a meal of victuals where dishes and food would be so clean that I would not be sickened by the sight, taste, or smell. Now, this is all the complaining I am going to do in this line. Had I not wandered off into regions where people seldom go, and where good hotels would not pay expenses, I presume I should have never needed to use such a sentence. Well, when I came to the pretty little town of Wheatland I found just what I had longed for. A neat-looking building in the edge of the town attracted me, for it had a sign up as hotel. The building was well painted, and clean. The porch in front was clean. A pleasant, well-dressed young woman answered my summons. She gave me a room where I could lie down for my nap, with spotless-looking bedding, window-curtains, and every thing in keeping. She opened three windows to give me plenty of air; and she gave me a lunch after my nap, that, while it was not expensive, made me feel happy and thankful. The tablecloth was clean and whole. The dishes were not cracked, and they were as free from dust and dirt as they are in my own home. Last, and not least, there was an air of gentility and refinement and culture that was as refreshing as the drink of pure water that I got from that first artesian well. O woman! do you realize how much it is in your power to make this world of ours a very garden of Eden to the tired and thirsty soul, instead of a wilderness of disorder, filth, and woe?

At Wheatland I made some inquiries in regard to my best route to Lebanon. The lady of the hotel told me to hunt up Dr. Fisher, as he could tell me all about it. I found him at the postoffice. Quite a crowd gathered around the wheel to examine it, and they expressed astonishment when I told them I had come on it all the way from Kansas City. Then the doctor undertook to advise me.

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[*] How many times I have regretted giving way to the temptation of the moment, and absenting myself from prayer-meeting! and how often, when I have *almost* decided not to go, something has happened that I would not have missed for almost any thing in the world! but I can not remember in all my experience that I ever regretted going; and it is a little singular, too, to think how many blessings, sometimes strange and unexpected ones, have come to my heart in prayer-meeting.

"Look here, stranger, you will have to let me think about it a little. Let's see. If you were going on a horse, I should say take the shortest cut over the steepest hills and roughest roads; but if you had a buggy or a cart, I would advise you to go around by Hermitage. This would be about six miles further. Now, the question is, will your new-fangled vehicle come nearest to horseback riding or the buggy? I rather think the latter; therefore I would advise you to go around by Hermitage. You will find many pretty fair stretches of road, where you can make the six miles extra in a very little time."

By the way, what nice people these country doctors are! They probably get pay for a good deal of the advice given, as well as for their physic; but do they not, as a rule, do a vast deal of good in any community without pay or any thought of it? May God speed and strengthen the family physican — especially those in country places! and may he give them wisdom and discretion in putting in less physic and more advice to the little flocks that are depending upon him!

One wonders why a town, especially a county-seat, should have the queer name of Hermitage. Did some hermit make this spot his abode in earlier days? or was it named in honor of Andrew Jackson ("Old Hickory"), whose old home in Tennessee was called the Hermitage? Well, it is a rather pretty county-seat after all, though the place is small. I came into the village from the west; but before I could reach the public square I was obliged to follow a bad stony road clear around to the north, until, in fact, I turned clear around and went a little way westward to get into the town that had been in sight for some time. I afterward found that a very steep cliff and a river at the base made this circumlocution necessary. In this part of Missouri they have no bridges. In fact, I have been told that there is not a bridge in Laclede Co. I think there can not be many, if any at all, in Hickory Co. I found the people very courteous at Hermitage; and one of the boys told me there was *one* wheel in the town, but nobody had yet learned to ride it.

I reached Hermitage a little before sundown on Friday night; but as my next day was to be the hardest one of the whole trip, I decided to push on as far as I could before darkness stopped me. They told me I would have to ford a river just outside of the town; but a crowd of small boys volunteered to escort me past the river. In the deepening shades of night the dark waters looked treacherous; but I picked out the longest-legged boy in the crowd, and gave him a nickel to wade through before me. By standing on tiptoe, with the wheel across my shoulders, I managed to keep my pantaloons from getting wet after I had rolled them up to the very highest notch. I rather think my wheel-riding has developed my muscles to a little more than their usual size, and that was why I could not get my trousers rolled up any higher. After a little talk with the boys I bade adieu with God's blessing, and put in my best licks toward shortening the fifty or sixty miles between myself and Lebanon.

A great deal of my route was now through the wilderness. A good deal of the time the narrow cowpath roads were so full of fallen leaves that I had to guess at my path more or less. The crushing of the dry leaves under the rubber tires, and the tinkling of the cowbells, made me feel glad, even though few people or houses either met my view. Just as I came into the little town of Plad I was surprised to hear boyish voices and roars of merriment. In a field near by they had gathered to play baseball. Some one saw me first, and uttered an exclamation. The boys stopped their game, and began to give deafening cheers for the new method of locomotion that came upon them like an apparition. I joined in the laugh, and returned their "howd'yes" as I passed by; but before I was out of sight it began to seem to me that their yells were not all of them in a friendly strain. The town of Plad is composed of three buildings—a general store, a dwelling-house, and some sort of warehouse. There may have been more buildings, but I do not remember them now. As soon as I alighted from my wheel a crowd gathered around it as usual, for the baseball players had caught up with me by this time. I arranged for taking a brief nap, and went out to bring in my wheel. But new comers were constantly arriving as the news spread, and it seemed a little hard to take it away from the crowd. The storekeeper said he guessed it would be perfectly safe if left out there; but when I had finished my nap, perhaps twenty minutes later, I was surprised to see it not only standing alone, but there was not a man, woman, nor child visible. I concluded they had probably gone back to their ball game; but I felt a little misgiving as I mounted. I felt of the tires. They seemed all right; but before I was out of sight of the store I knew mischief had been done. The bystanders were likely hidden somewhere, and they could see me, but I could not see them, and they were watching to see me go down. I decided, however, to disappoint them if I could. One of the tires got softer and softer, but I managed to get down the road into the brush; then I took my wheel out into the bushes away from the path and changed the tires. When I reached Lebanon I found *seven pinholes* to be cemented up. I do not suppose these people knew it was a $50 fine for puncturing a tire. Perhaps some urchin was curious to see whether it really was "wind" that kept them inflated. I decided once not to mention this one piece of discourtesy I met during my whole trip; but afterward I thought it might be a valuable caution about leaving wheels for any length of time among a crowd of boys. I afterward learned that there was a rather hard set around this little four corners away back in the wilderness of Dallas Co.

OURSELVES AND NEIGHBORS

BY OUR A. I. ROOT.

And they straightway left their nets, and followed him.—MATT. 4:20.

And they immediately left the ship and their father, and followed him.—MATT. 4:22.

Ever since that automatic little greenhouse across the street from where I write was made, I have contemplated replacing the loose sashes, which covered it, with permanent rafters and glass. You see, by this means we get much more light; and loose sash are only a temporary affair after all. A big wind blew off a lot of them last winter, and it cost me several dollars to get them back. My trip to Missouri, however, delayed the work, and I gave it up. But the more I looked at that little greenhouse, where every thing grew "from the word go," and never a failure, the more I wanted some large panes of glass, supported by permanent cyprus rafters; so, just for the fun of it, I went to figuring up how it could be done. I found I had rafters enough by using some old ones. By the way, I want to say a good word for the cyprus sash-bars made by the Lockland Lumber Co., Lockland, O. When our machine-shop was built, four years ago, about a dozen were taken from a greenhouse, and hastily thrown down under the eaves. To protect the cellar from frost, sawdust was piled over the rafters, and there they were, over four years, exposed to winter's snow and sleet, and summer's sun. But, come to get them out and sweep them off, they were almost as straight and sound as the new ones that had been stored away in the warehouse. We waited for Indian-summer weather; but a good many of you know it did not come for two or three weeks. I made a nice pattern of the way I wanted the sash-bar cut, including some nice and complicated framing, both at the top and bottom of the twenty-foot stick. Then our friend "Art," from the saw-room, set his machinery so he cut the whole 28 exactly like it. Then friend "Iper," from the paint-shop, gave them all two good coats of paint, including the top and bottom strips, which were 28 feet long. Holes were bored in the rafters, where they were to be nailed with great spikes to the plates of the greenhouse, every six feet. Finally a day came when I thought I could start the work outdoors, even if it was pretty cold. The greenhouse boys — "Frank" and "Fred" — were quite ready to follow me, and my framing and planning all seemed to work to perfection. We had set two rows of glass and part of another. They were butted together with thick paint between the edges. The tins were driven home with a machine made for the purpose, and I was just showing the boys how to run on the liquid putty and afterward to sift on the sharp white baked sand.

Let me explain to you why we were anxious to rush the work. All of my hot-water pipes were exposed to the weather. When it went down to only 15 above zero about the middle of November, the only cover for the greenhouse consisted of some old cotton sheets. They were rotten already; and the snow, sleet, and fierce wind flapped them about so much that the hot-water pipes had been frozen once, and I feared the consequences of another such blizzard. While I had my hands and head full in directing the boys how to do the work, somebody raised up the dirty flapping cotton sheet and saluted me thus:

"Is this indeed Bro. A. I. Root?"

My hands were sticky with liquid putty; and my old clothing, worn specially for the occasion, was pretty much in the same predicament, and I really felt as if I hadn't time to say "how d' do?" to anybody, let alone shaking hands and visiting. Something must be said in answer to this question. I was *A. I. Root*, sure enough, without any doubt; but about the "*brother*" part, it seemed to me there was a little uncertainty. My visitor was dressed in military costume. He was a very bright, attractive-looking young man, and he seemed so delighted to see me that I hastily rubbed the putty off my fingers, fished my dirty silk handkerchief from the pocket of my soiled overcoat, while I told the boys to go ahead the best they could. I found the new friend to be Fritz Malan. He is an Italian, and has kept bees in sunny Italy. In fact, he was an enthusiastic reader of Gleanings, and an admirer of your humble servant when General Booth came near his home and called him to join the Salvation Army. An interesting letter will be found in Gleanings for 1889, page 622, from his pen. Our young friend was devoted to his bees, and was doing well; but when the light of the gospel of Jesus Christ shone down in his heart he straightway left bees, home, and all his possessions, and followed the general. He is now his private secretary. When they came to Cleveland, however, Malan petitioned for just a few hours to go down and visit the Home of the Honey-bees, and call on his friend A. I. Root. This latter personage has a reputation, as you know, of being somewhat of an enthusiast in "the kingdom of God and his righteousness," as well as in bees, gardens, strawberries, greenhouses, etc.

I have before spoken of the Salvation Army. I knew a little of General Booth, and of the enthusiastic reception he was getting, not only from the great cities of the United States, but from the great cities of the whole world. I told friend Malan that I had planned to go and hear General Booth when he came to Cleveland; but here I was, full of business and worldly cares, and had even forgotten the appointment. The boys were already coming to a standstill. I turned my young friend over to John and Ernest, to have them show him the hospitalities of our establishment, and made arrangements as best I could to have the boys finish covering the greenhouse alone if the next day should be mild enough. I suggested to the young Salvationist, that, if a big wind should come up when the glass was half on, it would probably blow my greenhouse all to pieces; but notwithstanding, I thought I would take the chances and go with him on the train that would leave in a little more than an hour. I can not remember exactly the answer, but it was something like this:

"No, no, Bro. Root; the greenhouse will not blow to pieces, and I think you will find that the boys will manage tip-top while you are gone. I know by experience that it is sometimes a pretty hard matter to let every thing go, and follow the call of Jesus Christ; but I know, too, that he that loseth his life for Christ's sake shall find it; and that he that forsakes houses, or brethren or sisters, or father or mother, or wife or children or lands, for his sake, shall receive a hundredfold, and shall inherit eternal life." I do not think that my friend put in those words exactly, but it was something to that effect. We are all familiar with the Bible teaching in that respect. "Seek ye *first* the kingdom of God, and his righteousness, and all these things shall be added unto you."

When he started for Medina he did not think he was going to be able to take me back with him; but he seemed greatly delighted to have me stop my work and give him so much of my time. During our trip on the cars he unfolded something of General Booth's industrial work among the outcasts of the great city of London. He told me of the 2000 acres that had been given him, of the number of poor people to whom he had given employment, and had enlisted in the Salvation Army. He told me about the lost women whom General Booth set to work raising strawberries. Then he quoted an answer the general gave in one of his talks to somebody who, like myself, asked him how it was possible that their institution could go on without the general there to manage it and direct. Now, this answer, mind you, is second hand, and it may be quite different from the general's own words; but the idea was something like this: General Booth replied that the secret of his success was because of the many helps he had received. England gave him 2000 acres. The poor people whom he had saved from sin and ruin gave their time, or, at least, they told him he could pay them whatever he could afford. Help came from different sources. When he wanted the wherewith to fertilize the ground so as to grow good crops, the city of London gave him stable manure free of charge, and even drew it to his place; and finally, said he, the great God above gave his *only begotten Son*. Is it any wonder that the project had succeeded? My informant told me further that they furnish a meal of victuals to these poor outcasts, for only *3 cents!* I remonstrated a little at such an exceedingly low price; but I found out later that this meal was mostly a quart of rich soup; but I know by experience that a man can do a great deal of work on such a meal. Futhermore, a night's lodging was furnished for a penny. I suppose this lodging consisted of shelter and a shelf to sleep on. Bathrooms are also fitted up so a good bath could be taken for a penny. You see, all hands are working for Christ Jesus, and therefore the expenses are easily kept down.

When we stepped off from the cars I soon discovered that friend Malan had *other* brothers than myself. When he was too far away for a hand-shake he gave them the army salute, and responses came from every direction. I wanted to see his people out on street parade, and he hurried me along so we might not be late. In order to make the shortest cut he made inquiry of a stranger. The stranger recognized his uniform, and asked him some questions about the meeting. Mr. Malan seized the opportunity, and in walking just a few blocks the stranger became deeply interested. When their paths separated, such earnest words were spoken that the stranger decided to continue further. Now, I do not know for certain that a soul was brought into the ranks in that short walk of ten minutes, but it looked very much like it.

We were just in time for the parade. The music was inspiring. The men, and the women too, who marched in the streets that sloppy night looked to me like saints sent from above to plead with lost humanity. I preferred not to sit on the stage, but to be down among the people. My friend placed me on one of the vacant seats in front. There was some remonstrance, but he shook his finger in token that I was not to be troubled. But others noticed me, and he finally gave me a little card on which was penciled:

FRITZ MALAN,
Ufficiale nell' Esercito della Salvezza.
(Secretary to Gen. Booth.)

Please give bearer front seat.

The Italian words mean, "Officer in the Salvation Army."

This card proved sufficient to allow me to keep my seat. Mr. Ballington Booth, son of General Booth, took charge of the meeting until his father came on to the stage. The younger man has a military bearing, and is a man of commanding presence. The music, like that on the street, was of a kind to awaken one's best emotions and resolutions. I never thought that the tamborine was very much of a musical instrument until that evening. Near me was a mere child who seemed full of music from the tips of her fingers to her very toes; and the way she handled the tamborine made me fall in love with the people and with the instrument. The principal singer, whose name I have forgotten, was an Englishman. He was of about the dimensions of Dr. Miller, and his singing reminded me many times of that of our jolly friend. By the way, I want to tell Dr. Miller right here to take the first opportunity to hear and learn some of the hymns of the Salvation Army. This English singer seemed to me to be the first individual I ever met who could combine eloquent oratory with the grandest kind of music. He exhorted sinners to turn from the world, singing it so slowly that he had time to encourage new converts as they came up the aisles, by brief, encouraging words interspersed between the words of his music, and yet the melody was not marred a particle. Why, you could hear the music going on, even when he was not uttering a sound. He seemed to have a rare gift of tossing the melody above his head, as a sleight-of-hand performer would pitch balls, and then when it came back he simply gave it a pitch and kept it going. His voice was powerful, however, and he put his whole strength into it. He had spiritual strength and a winning way, as well as physical strength.

Fifty or sixty converts came forward that evening. One whole family came in response to the eloquent pleading. As I had no badge nor uniform, every now and then some of the workers would whisper in my ear, "Dear brother, have you given your heart to Jesus?" or some similar words. The great Music Hall was full. I was told that some two or three thousand were in attendance. They were mostly from the humble walks of life; but they evidently had followed the spirit of the text I have quoted. Christ Jesus was first. Many of them were humbly attired; but that seemed to make no difference. It was not only brother and sister in word but in spirit. I learned to love the gentle words and expression in the voices of the men-folks, even though some of them were colored people. I learned to love, too, the sweet spiritual look that beamed from under the queer bonnets worn by the women-folks, even though many of them were well along in years, and perhaps would not be called at all good-looking by the world at large. A peace seemed to pervade their hearts and faces that was not of this world. "My peace give I unto you. Not as the world giveth, give I unto you."

After the meeting closed, it was my privilege to have a little chat with the general in his private parlor. He was as deeply interested in strawberries as bee-keeping, because such industries promise a chance for him to give employment in that London home for outcasts. He said he had found great trouble in finding something to do for the lost women who had joined the army. He could not well put them into families, and many would object, when they came to find out in regard to their former lives. He had succeeded nicely, and made it more than pay expenses in setting them at work on strawberries; but the latter could not be grown the year round. I invited him to call at our establishment; but he said that the demands on his time were such that it was impossible. He is well along in years, and I am afraid that he is being overworked, as he speaks to audiences two or three times every day, and addresses meetings of ministers in almost every city besides. The *Morning Star*, of Boston, Mass., makes the statement that he is "general of the largest army in the world, the head of a civilization of redeemed sinners, the central influence of a brotherhood out of every nation."*

When I got home, twenty-four hours later, I was surprised to see more than half of my greenhouse nicely covered, although the weather had been so very cold that I did not think the boys could work. In fact, three experienced men in glazing had tried and given up; but my two boys, Frank and Fred, are so hardened by being almost constantly exposed in the open air

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*In the *Morning Star*, issue of Nov. 8, will be found an excellent account of Gen. Booth, his work, and the Salvation Army.

that they took hold of the glaziers' tools and finished the whole house themselves, when it was too cold for anybody else to work. It is now a thing of joy to at least *three* people, for it does not leak a drop. Fred and Frank learned the trade of setting glass, and got a present from their employer as a recognition of their skill and endurance.

"And they straightway left their nets, and followed him." Did they make a mistake in so doing? and are you ready to do as much? Let me whisper to *you* the words that have been ringing in my ears ever since that evening—the words of that sweet-voiced woman who whispered so gently to me, "Dear brother, have you ever given your heart to Christ Jesus?"

HIGH PRESSURE GARDENING

LETTUCE-GROWING IN GREENHOUSES.

Now is the time to begin to push things in growing lettuce under glass. I am satisfied that the very best manure is fresh horse manure, with all the coarse straw sifted out. Break it up fine with a lath or strip of board, or, better still, pour it down on the ground and let the chickens scratch it over and pick out the seeds and undigested grains. Of course, they will spread it over a good deal of ground in a little while; but if you give them a nice clean place you can soon sweep it up again. Now make up your beds, spading (or, rather, *forking*) clear down to the bottom; or if in a greenhouse right on the ground, spade down to the yellow earth. Chop it up fine with a rake; then sift, so as to get the coarser particles at the bottom, and finally spread your manure over the surface of the beds an inch or more in depth. Now chop it in thoroughly, so as to mix it completely with the fine sifted soil. Water it just enough; put on your bottom heat, if you have any, and then wait until every weed seed has germinated before you put in your lettuce-plants or sow any seeds. In this way you will save a big lot of finger-weeding. When the seeds and grains in the manure have all germinated, chop it all over once more with your sharp steel rake, then rub the surface smooth with a strip of board, killing the weeds and fining the soil; and then cover the surface of the beds *once more* with half an inch of tobacco dust. Now put in your lettuce-plants, 7 inches apart from center to center, and you will have little if any trouble with weeds, because the lettuce will soon fill the ground, and the tobacco dust will effectually cut off all bother and trouble from the green fly, snails, and any other enemies of this kind. This fresh rank stable manure is worth more for rank foliage, in my opinion, than any other fertilizer in the world. Real old-fashioned guano might be a help, but I don't believe any thing else is worth bothering with.

HIGH-PRESSURE GARDENING IN CALIFORNIA.

Mr. Root:—When I read your article, "High-pressure Gardening during dry Weather," I had to smile (audibly). Well, it was in regard to that remarkable peach-orchard, where you said that "some of the young growth had grown 18 inches or 2 feet." Said I to my wife, as I leaned back from the table, "We can beat that all hollow out here." So with tape-line and ten-foot pole in hand I went out into the orchard to measure a peach-tree which was set out in the spring of 1893. I don't remember the time, but perhaps it was in March. I put out several at the same time, and they are all nearly the same size now. They were all dormant buds when set out, and, of course, have grown from the ground. The one I measured was exactly 9 feet and 8 inches high, and the branches were 8 feet and 6 inches across. The circumference of the trunk 4 inches from the ground was a little over 10 inches. In July, about 16 months from planting, this tree ripened 14 as nice Early Crawford peaches as I ever saw, measuring from 7 to 9 inches. You no doubt will say this is a California story; but I can assure you it is no uncommon thing to have Salway peaches from 9 to 11 inches.

And now since I am telling California stories (true all the same) I want to speak about some pumpkins I raised last year near the roadside (without irrigation), which attracted much attention and comment. One evening, when three men were passing I told them I would give either of them the largest one in the patch if he would load it on his cart without help. So the first man, whom we will call No. 1, after vainly trying several times, gave it up. You see, it is not so much the weight as the shape. No. 2 approached with much confidence and kneeled beside the monster, and, after many efforts, finally succeeded in rolling it up into his lap, and from there to his shoulder; but when he tried to rise with it he also failed, and let it roll off, amid the laugh and jeers of those around. Now up comes No. 3, with face beaming with radiance and expectation, and, after getting his second hold on it, he succeeded in picking it up and carrying it some 30 feet, and landed it successfully in his cart and drove up town and ascertained its weight to be 140 lbs. These men were all large and stout. I had one in another patch which tipped the beam at 168 lbs.—from the seed of one that weighed 173 lbs. the year before. I also raised, last year, without irrigation, some very large sweet potatoes, one hill producing 35 lbs., and one potato which weighed 15 lbs., and was smooth and perfect in shape. It was sent to the Midwinter Fair at San Francisco, but there were others there still larger.

Yes, the way we do it is by thorough cultivation and very little water, and often *none* from the time the seed is put in the ground until harvest. This year is an exceedingly dry one, and we have had to irrigate more than usual. Last winter's rainfall was less than 8 inches—none falling since December—yet there is plenty of corn which will make from 30 to 60 bushels to the acre, with only two irrigations.

Fruit of all kinds has been a good crop and of No. 1. quality.

One more, and I will quit. I raised Muscat grapes 3 inches in circumference, from vines set last year—the same variety we make raisins from. T. L. HOLLOWAY.

Whittier, Cal., Oct. 1.

[Very good, friend H. I am prepared to believe all you say, for I saw similar results in favored localities; but I saw also a great deal of poor, shiftless slipshod farming in California. In fact, I am inclined to think that such crops as yours are the exception. You did not tell how much those big pumpkins and sweet potatoes were worth for cooking. The boys were just telling me that they are having difficulty in selling the large sweet potatoes we get from Baltimore. They say customers keep picking out the smaller ones. We can not equal you in peaches and peach-trees, it is true; but a friend of mine—a brother of the one who has the peach-orchard I told you about—said he had just sold some Salway peaches, raised on his own Medina clay soil, that brought readily $1.25 per half-bushel basket; and that, too, right in the neighborhood of where they were grown. We can not all go to California; but we can get good prices here at home, with first-class fruit, and have lots of fun in doing it.]

MUSHROOMS; THEIR TARDINESS IN COMING UP.

Mr. Root:—The mushroom spawn I received of you last spring and planted in March is just coming up. The mushrooms are large and fine, but come up very slowly. I suppose it is because of the cool weather. Now, if you think it would be of interest to others, please tell how to keep the spawn in the bed over, to plant new beds with next spring. Can you not give us some good way to cook the mushrooms also?

A. I. TOMBERLIN.

Phillipsburg, Kan., Oct. 19.

[Friend T., my impression is that it will not pay you to undertake to produce mushroom spawn or seed; but perhaps it will come up itself year after year where you have already grown it. Its tardiness in coming up is one of the perplexing things about the vegetable.]

SPECIAL NOTICES FROM BUSINESS MANAGER

In view of the business change spoken of elsewhere editorially, all claims up to date due A. I. Root should be paid, of course, to the A. I. Root Co.

CARLOAD SHIPMENTS.

Prospects for trade next season, so far as we can judge this early, are fair. We have entered orders for two carloads of our extra polished sections, one of them for export. As we go to press we are loading the first car for Florida, and this will be followed by a car to the Rawlings Implement Co., Baltimore, Md., or Baltimore Farm Implement Co., as their old name reads. Others are sending large orders, and taking advantage of the early-order discounts. Our 1895 catalog is developing slowly but surely. We hope to have it completed soon after Jan. 1, 1895. We have decided to reduce the size to 40 pages, and include only bee-keepers' supplies, and will make a separate l st of the miscellaneous household articles.

HONEY MARKET.

We have no change to report in prices of honey. Demand is slow with us, especially for comb honey. We have but 12 cases of extracted alfalfa left from the Reno car, and little prospect of getting another supply. There is lots of choice alfalfa honey in Colorado, but it costs more than twice as much to get it from there to Chicago as it does from California to any point east. It is, therefore, impossible to allow the producer a fair price and still deliver it here low enough to compete with honey produced in Wisconsin and New York and elsewhere. We still have a good supply of alfalfa comb honey, very nice, and will make special prices on large lots. Let us hear from any one interested.

We have choice clover and basswood extracted honey in 60-lb. cans, at same prices as quoted in our last.

A NEW EDITION OF GOSPEL HYMNS.

When Gospel Hymns Nos. 5 and 6 were first issued, the publishers said they would not be bound with the first four numbers. I presume the demands upon them have been such that they have receded from this position, for they have just brought out a new edition, comprising all the hymns and tunes in Nos. 1 to 6 inclusive, without duplicates, bound in cloth. Price, postpaid, $1.20; by express or freight, at purchaser's expense, $12.00 per doz., or $1.00 each. We have to offer nearly all the other editions of Gospel Hymns as follows:

Gospel Hymns consolidated, Nos. 1 to 4, large-type edition, words and music, board cover, 75c each, $8.50 per doz.; postage 10 c each.

The same, words only, board cover, 20c each, $2.25 per doz.; postage 2c each.

The same, small-type edition, words and music, 45 cts. each; $5.10 per doz.; postage 5 c each.

The same, small-type edition, words only, limp cloth, 10c each, $1.15 per doz.; postage 1c each. The same, paper cover, 5c each, 58c per doz.; postage 1c.

Gospel Hymns No. 5, words and music, board cover, 30c each, $3.40 per doz.; postage 5c each.

Gospel Hymns No. 6, words and music, board cover, 30c each, $3.40 per doz.; postage 5c each.

Gospel Hymns Nos. 5 and 6, words and music, board covers, 60c each, $6.80 per doz.; post., 10c each.

Gospel Hymns No. 6, C. E. edition, words and music, board covers, 35c each, $4.00 per doz.; postage 5c each.

VALUABLE BOOKS FOR CHRISTMAS GIFTS.

We have just received from the Charles Foster Publishing Co. another shipment of their beautiful family books drawn from the Bible, of which we have sold so many during past years. We have room here for but a brief announcement. If you have back numbers of GLEANINGS on file you can find fuller descriptions written a year ago. The first and most important is—

The Story of the Bible, by Chas. Foster. Half a million copies of this work have been sold, and it has been reprinted in many foreign languages. It is a handsome cloth-bound book, 5½x8½, 1⅜ thick, weighing 2½ lbs., with 700 pages and 300 illustrations. Price $1.00; by mail, $1 20.

Bible Pictures, and What They Teach Us, is another most fascinating book for a child, and is at the same time elevating and ennobling in its effect upon the child's mind. It is 8x10, by 1 inch thick; weighs nearly 3 lbs.; contains 315 beautiful Bible pictures, with brief sketch, comprising 232 pages. Price $1.00; by mail, $1.22.

Story of Bible Animals is another in the series. Same size, and at same price as Story of the Bible.

First Steps for Littte Feet, by the same author, is a book for young children, and a great help to mothers and teachers in imparting Bible truth to the little minds; 328 pages, 140 illustrations. Price 50c; by mail, 57c.

Pilgrim's Progress, Illustrated, is a handsome book by the same publishers. Size 7½x10, and 1⅛ inches thick; 420 pages and 170 illustrations; beautifully illuminated cover of red cloth, embossed in gold. Price, plain edges, 75c; gilt edges, $1.00. By mail, 21c extra.

Fables and Allegories, or, New Lights on Old Paths, is another beautiful gift-book by the same publishers. It contains 512 pages and 350 illustrations. Size of book, 1½x7½x9½; weight 4 lbs. Has light-blue cloth cover, embossed in black and gold; has gilt edges, and makes a handsome and valuable gift-book. Price $1.50; by mail, $1.82.

These prices are about two-thirds of the regular selling prices of these books; and yet for every subscription to GLEANINGS you send us, with $1.00 paid in advance, you may deduct 25c from the price of any of the above books you may select. Your own subscription will count if you send another with it, and both are paid up, but not otherwise.

ORDERING POTATOES NOW, TO BE SHIPPED WHEN YOU DIRECT IN THE SPRING.

We shall once more undertake to send out potatoes as we did last spring, but I do not think we shall again risk starting them before the first of April, no matter how enticing the weather. You will need to order the potatoes now, at the prices given on p. 885 of last issue. You must either pay for them now, or make a sufficient payment on them to pay us for putting them up and furnishing cellar space for them till next April. Or we will ship them sooner providing you will stand all loss from freezing. In other words, they are to be shipped April 1 unless you direct them sooner. At the very low rates we have given, we shall very likely run out of many kinds before spring; but if they are put up now, your name marked on them, "paid for," you make a sure thing of it. We guarantee them wintered safely without freezing, and with no more sprouting than can be prevented by an excellent cellar made on purpose, and opened and closed according to the weather, that they may be neither too hot nor too cold.

Lathyris sylvestris has stood several severe freezes —one of them only 15 above zero—without being hurt a particle.

Unparalleled Offers.

TWO PAPERS FOR THE PRICE OF ONE,

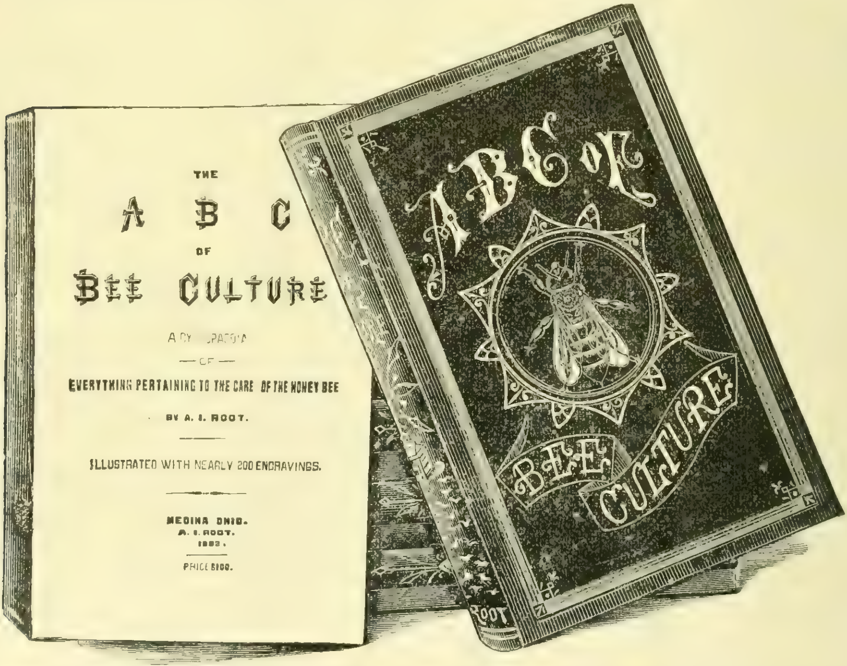
And the

A B C of Bee Culture Thrown in at Half Price.

We have for several years made special clubbing rates with the *Farm Journal*, Philadelphia, Pa. As an agricultural monthly we don't believe there is another that will compare with it. It is pithy, pointed, and practical. The regular subscription price is 50 cents; but we are able to *give a year's subscription free* on the following conditions: Send us $1.00 to renew your subscription *before* the time paid for is up. If you are in arrears for GLEANINGS IN BEE CULTURE you must pay up to the end of this year and for a year in advance, when you will be entitled to the *Farm Journal* for a year also. If you secure a new subscription to GLEANINGS, and send $1.00 for the same, you may have the *Farm Journal* a year to pay for your trouble, or you may have it sent to the new subscriber if you wish. All new subscriptions to either paper will receive the rest of this year remaining after your subscription is received, and all of next year.

This offer is good only for this month of December.

After this month the club price will be $1.10; and to those who are in arrears for GLEANINGS, the best club price is $1.20, unless all arrears are paid and a year paid in advance.



Desiring to close out quickly the present edition of the A B C of Bee Culture, we have decided to make this very liberal offer: We will bind up these books in heavy tinted parchment cover, very strong, and, in addition to above offer, we will give one copy free postpaid for 55 cents additional, or the cloth-bound book for 75 cts. additional. If you prefer the *American Bee Journal*, *Review*, or *Canadian Bee Journal*, instead of *Farm Journal*, you may have any one of these one year with GLEANINGS one year, and the A B C in parchment cover, for $2.30; or with cloth cover for $2.50; or you may have any one of the 50-cent bee-journals, *Progressive Bee-keeper*, *American Bee-keeper*, or *Nebraska Bee-keeper*, with GLEANINGS one year, and the paper A B C, for $1.80, or cloth-bound $2.00. If you will secure for us a new subscriber to GLEANINGS at $1.00, to send with your renewal, you may add to any of the above offers 75 cents net for the new name. If you send two subscriptions besides your own (one of which must be new), and all paid in advance, together with $3.00, we will send free postpaid a cloth-bound A B C to the one sending the club, but no other paper or premium will be included. **For one new subscriber sent with your own renewal, and $2.00, we will send free the paper-bound A B C of Bee Culture.** Could you ask for larger return for a little effort? This edition of the A B C which we offer on these liberal terms was printed in 1890-'91, and an appendix with all the latest developments was added last year, so that it is almost up to date with the edition now in the press, to be completed next spring.

This is a rare chance to get one of the most valuable text-books on bee-keeping anywhere published. *More than 50,000 copies of the book have been sold* during the past 15 years since it was first issued. No other bee-book ever published has reached any thing near such a circulation as this. We have but a few hundred copies to offer on the liberal terms given above. You will do well, therefore, to take advantage of one of these offers without delay.

The A. I. Root Company, Medina, O.

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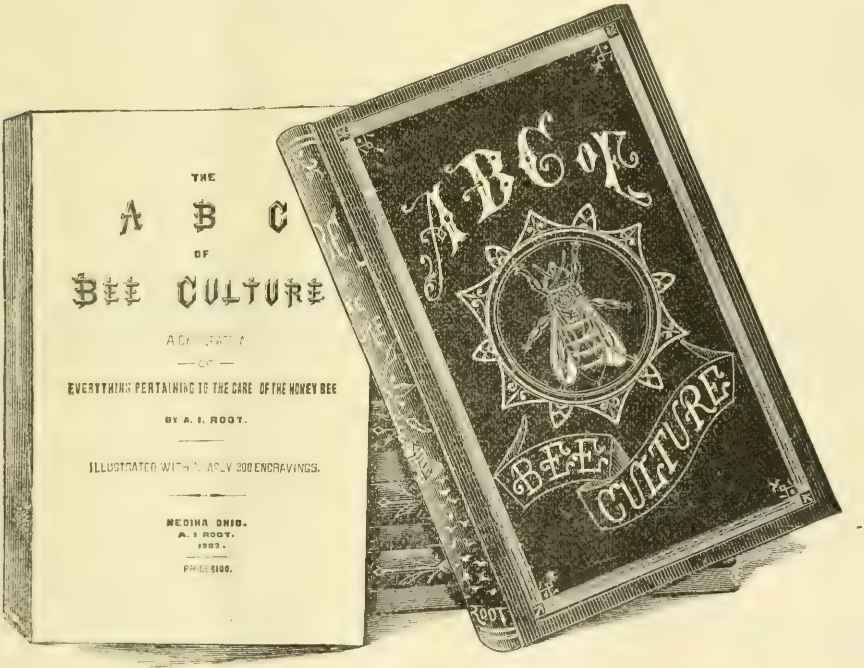
THE
A B C
OF
BEE CULTURE
EVERYTHING PERTAINING TO THE CARE OF THE HONEY BEE
BY A. I. ROOT.
MEDINA OHIO.
A. I. ROOT.
A B C OF BEE CULTURE
ROOT

Desiring to close out quickly the present edition of the A B C of Bee Culture, we have decided to make this very liberal offer: We will bind up these books in heavy tinted parchment cover, very strong, and, in addition to above offer, we will give one copy free postpaid for 55 cents additional, or the cloth-bound book for 75 cts. additional. If you prefer the *American Bee Journal*, *Review*, or *Canadian Bee Journal*, instead of *Farm Journal*, you may have any one of these one year with GLEANINGS one year, and the A B C in parchment cover, for $2.30; or with cloth cover for $2.50; or you may have any one of the 50-cent bee-journals, *Progressive Bee-keeper, American Bee-keeper, or Nebraska Bee-keeper*, with GLEANINGS one year, and the paper A B C, for $1.80, or cloth-bound $2.00. If you will secure for us a new subscriber to GLEANINGS at $1.00, to send with your renewal, you may add to any of the above offers 75 cents net for the new name. If you send two subscriptions besides your own (one of which must be new), and all paid in advance, together with $3.00, we will send free postpaid a cloth-bound A B C to the one sending the club, but no other paper or premium will be included. **For one new subscriber sent with your own renewal, and $2.00, we will send free the paper-bound A B C of Bee Culture.** Could you ask for larger return for a little effort? This edition of the A B C which we offer on these liberal terms was printed in 1890-'91, and an appendix with all the latest developments was added last year, so that it is almost up to date with the edition now in the press, to be completed next spring.

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The A. I. Root Company, Medina, O.

HONEY COLUMN.

CITY MARKETS.

BOSTON.—*Honey.*—We quote our market on best 1-lb. comb honey at 13@14, and extracted 5@6, with good demand and fair supply. **E. E. BLAKE & CO.,**
Dec. 8. Boston, Mass.

CINCINNATI.—*Honey.*—There is no change in the market. Demand is good for all kinds in a quiet way. No change in prices. Extracted honey brings 4@7c a lb. Best white comb honey. 14@16. There is a good demand for beeswax at 22@27 for good to choice yellew. **CHAS. F. MUTH & SON,**
Dec. 8. Cincinnati, O.

CLEVELAND.—*Honey.*—Our honey market is about the same as when last reported, No. 1 white clover in 1 lb. sections selling at 14@15; No. 2 grade, 12½@13. Extracted, 8. The market is steady at present, but cold weather may improve it.
WILLIAMS BROS.,
Dec. 7. 80 & 82 Broadway, Cleveland, O.

DETROIT.—*Honey.*—White comb honey in good demand at 14@15; dark lots, 12@13; extracted, 6@7. Beeswax, 25@26. **M. H HUNT.**
Dec. 7. Bell Branch, Mich.

BUFFALO.—*Honey.*—Slightly increased receipts of honey. Market somewhat weaker. Fancy, mostly 13@14; choice, 11@12; buckwheat, 9@10; other grades according to quality, etc. Beeswax in good demand at 28@30. **BATTERSON & CO.,**
Dec. 7. Buffalo, N. Y.

CHICAGO.—*Honey.*—The trade is taking some comb honey for holiday display. This helps out all the choice lots, which bring 15c; other grades that are good to choice, 13@14. The dark grades, as usual. are slow of sale at 9@10. Extracted sells chiefly at 6. 6½. and 7. Very little basswood or clover being offered in 60-lb. tins, 2 in a case. Such meets with ready sale at top prices. Beeswax scarce at 28c.
R. A BURNETT & CO.,
Dec. 7. 163 So. Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—The stock of comb honey is large; market well supplied. Fancy white 1-lb. combs, 15; amber, 12@13. Receipts of extracted, light; white, 7; amber, 5¼@6; southern, 4½@5. Beeswax, 22. **HAMBLIN & BEARSS,**
Dec. 8. Kansas City, Mo.

DENVER.—*Honey.*—Our market seems on the decline. We quote No. 1 white comb honey in 1-lb. sections, put up in 24-lb. cases, suitable for putting in cartons, 11@12c; No. 2, in cases, 10. No. 1 extracted, in 60-lb. cans, 6@7c. Demand for extracted honey is quiet with a good supply on the market. The retail trade is well supplied with comb honey.
Beeswax, 22@25 per lb.
R. K. & J. C. FRISBEE.
Dec. 10. Denver, Col.

KANSAS CITY.—*Honey.*—We qoute No 1 white comb, 14@15; No. 2, 12@13; No. 1 amber, 12@13; No 2, 10@11; extracted, 4½@7. Beeswax, 2[illegible]@23.
C. C. CLEMONS & CO.,
Dec. 8. Kansas City, Mo.

ST. LOUIS.—*Honey.*—With the advent of cold weather the honey trade improves. We quote choice white comb honey, 13@16; medium, 12@14 Extracted, choice white, in barrels, 5; in cans, 5½@6½; amber, 4@5. Prime beeswax, 23.
D. G. TUTT GROCER CO.,
Dec. 10. St. Louis, Mo.

MILWAUKEE.—*Honey.*—This market is in very good order for choice qualities of honey; and it is a very pleasant feature of the business to note the decided improvement in the quality of the crop and the care and order exercised by shippers in grading and packing, over former years; and our stock presents to our customers a very "sweet" and attractive invitation to buy. The receipts have been very fair, and the trade quite satisfactory. We can now quote 1-lb. sections, very best, 16½@18; good, 15@16; common quality, no demand, no sale. Extracted, white, in barrels and kegs, 6½@7½; dark, 5@6. Beeswax, 25@26. **A. V. BISHOP & CO.,**
Dec. 5. Milwaukee, Wis.

ALBANY.—*Honey.*—We are still receiving frequent consignments of honey, principally buckwheat, and our sales are about equal to receipts, and stock is not accumulating to any extent; but prices are less firm, and we have had to sell some lots of buckwheat at 9c. Clover sells at 12@13. Extracted is still moving very slowly, with a large stock on hand.
CHAS. MCCULLOCH & CO.,
Dec. 10. Albany, N. Y.

SPRINGFIELD —*Honey* — White clover, 15@16; buckwheat, 12. Market fair.
PERKINS & HATCH,
Dec. 12. Springfield, Mass.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c.
eift **OLIVER FOSTER**, Las Animas, Col.

FOR SALE.—1800 lbs. honey in 60-lb. square cans, price 7 and 8 c., f. o. b. cars here. Sample by mail.
R. H. BAILEY, Ausable Forks, N. Y. Box 81.

Only a part of that car of honey left, but we still have plenty to fill orders at $7.80 per box.
AIKIN BROS., Loveland, Col.

Having secured a fine quantity of buckwheat extracted honey I now offer it in lots to suit purchaser, 210-lb. kegs at 5½c, f. o. b.; also 2000 lbs. of basswood and clover. **W. LAMAR COGGSHALL,**
eitf West Groton, Tompkins Co., N. Y.

FOR SALE.—7000 lbs. of fine, ripe, extracted basswood honey, highest offer takes it. Also Italian Bees and Fox-hound pups.
eift **ELIAS FOX**, Hillsboro, Wis.

FOR SALE.—Honey, in 60-lb. cans, 6c; 52-gal. barrels, at 5c. Send for sample
W. C. GATHRIGHT, Cameron, Tex.

SPECIAL
NOTICES
FROM
BUSINESS
MANAGER

The new monthly, *Market Garden*, and GLEANINGS will be only $1.25 per year for both, instead of $1.75, as we had it.

COMB AND EXTRACTED HONEY.

A good supply still on hand of both comb and extracted, especially of comb, at the same prices as quoted in former issues.

TWEEZERS AND MOLDS FOR QUEEN CELLS.

With the Doolittle and Atchley method of rearing queens, a little turned hardwood stick is required for molding the cells, and a pair of tweezers for transferring the larva. We can furnish the sticks at 5c each; nickel-plated tweezers at 15c each, or the two for 20c, postpaid.

DECLINE IN PRICES.

Under the new tariff we must rearrange some of our prices. There has been quite a decline in window glass and tinware. Small sizes and strips of glass that we have listed at $2.50 per box we are able to sell at $2.00, and in some sizes even less. Our raised cover tin pails will be reduced about 12 per cent; one-gallon cans, $1.00 per 100. Sugar-makers' supplies will be lower than ever. We expect to give prices on these in our next issue. While necessity requires advance in price of some articles, we are glad when we are able to announce a decline in price.

COLD-FRAME SASH.

The sash mentioned a month ago are of the regular size, 3 ft. 4 inches by 6 ft., for four rows of glass 8 inches wide. If any prefer larger glass we will furnish sash for 3 rows of 11-inch glass at same price. These sash are halved together at the corners, instead of being mortised and tenoned in the usual way. They have the advantage that they may be shipped knocked down at a low rate of freight, and they can be put together by anybody. If done securely they are just as strong as the regular sash. They are 1⅜ in. thick, outside bars about 3 inches wide, and inside ones about 1¼. The bars are grooved to slip the glass in place. If a light of glass is broken, move them up close and slide another in from the bottom end. If any prefer the bars rabbeted to set glass in putty, we will make them so on request. In putting the sash together the best job is done with screws; but nails may be used, and are less expensive. Price of sash in flat, without glass or screws, 65 cts. each; 5 for $3.00, or 10 for $5.50. Screws included at 5c each extra; 8x10 glass for same, 90 lights to the box, at $1.80 per box; 5 boxes at $1.70; 10 boxes at $1.60; less than a box, at 2½c per light.

Sash put up no glass or paint, 15c each extra; 10c each extra for each coat of paint, and 80c each extra for glass set in place, making the sash put up, painted 2 coats, and filled with glass, at $1.75 each in lots of 5. The risk and freight charges are so much more shipped put up with glass that we do not recommend you to order this way, and we can not well pack less than 5 safely.

ADVANCE IN PRICE OF BEESWAX AND COMB FOUNDATION.

It is rather unusual to see the market so bare of beeswax, and prices so firm, at this season of the year. This makes it impossible to maintain the present list price on comb foundation. Price of wax generally rules highest in the spring, when there is the largest demand for its use in making comb foundation. As most catalogs printed the first of the year are intended to last through the season, it is desirable to make prices which will not need to be advanced, if possible. In the January, 1895, edition of our catalog, now in preparation, the price of comb foundation will be as follows:

NAME OF GRADE.		Price per lb., in lots not less than			
	Sq. ft. per lb.	1 lb	10	25	50
Heavy brood foundat'n.	4 to 5	47	46	45	44
Medium " "	5 to 6	47	46	45	44
Light " "	7 to 8	50	49	48	47
Thin surplus "	10	57	56	55	54
Ex. thin " "	11 to 12	62	61	60	59

For 200 lbs. or over, write for wholesale prices.

Until further notice we will pay 26 cts. cash, or 29 in trade, for average wax delivered here. This is an advance of 4 cts. per lb. over our last quotations, and wholesale prices are advanced the same amount.

THE NEW CRAIG POTATO.

May be I am taking a responsibility upon myself in giving this the recommendation that I have done: but it seems to me it will certainly do something the same another season that it has on this one brief trial. For instance, there is not a scabby potato in the whole bushel, when Early Ohios and Puritans, right close by them, were too scabby to offer for sale. It grew with wonderful vigor, and kept bright and green all through the drouth, when every other potato ripened prematurely and dried up. It produced potatoes of tremendous size, and of a quality almost equal to the Freemans, and it gave the largest yield of any thing in the line of potatoes I have ever had any thing to do with. I have not yet heard from the introducer, but I take the liberty of offering one pound by mail, postpaid, for 25 cts.; ½ pk., by freight or express, $1.00; one peck, $1.75; half bushel, $3.00; bushel, $5.00; barrel of 11 pecks, $12.50. This offer will stand any way until our next issue; after that, friend Craig may if he chooses (but I hardly think he will) make a different arrangement, The potato is nearly round, with pink patches, something like the Peachblow. Of course, it is a late potato; and my impression is, that you want to plant it as early as you can, and dig it as late as you can. If they had it in California, I do not know but it would keep right on growing winter and summer, for it never showed the least disposition to let up, or show any evidences of maturity on the foliage. But notwithstanding this, it is a most beautiful *table* potato. So far as my experience goes, it is perfectly safe to send potatoes by mail any time during winter; and I believe that, as a rule, they go safely any time by express. By freight, however, it is not *really* safe to ship them from our locality before April 1.

SECOND-HAND FOUNDATION-MACHINES.

We have quite a list of second-hand foundation-machines to offer, and most of them are a bargain at the price. We have, besides, quite a few new mills, superior to what we used to make, but not up to the present high standard of excellence. These we will sell at special prices below the present list on new mills. If you are interested, and will write us, telling us what size you want, what grade or style of foundation you wish to make, we shall be pleased to submit samples with price. The most of the mills of this kind are six-inch. We have no ten-inch off-grade new mills, but we have one or two 12 and 14 inch, besides a good stock of new machines of first quality, extra fine, at new list price. Our list of second-hand mills is as follows:

Six-inch hex., No. 1461. Price $10.00. This is in good condition, and just right for thin surplus foundation.

Six-inch hex., No. 1631. Price $10.00. In good condition, and will make thin surplus foundation 10 ft. to lb.

Six-inch hex., No. 1565. Price $12.00. This is in good condition, with very light wall, and will make extra thin foundation about 11 ft. to lb.

Ten-inch round cell, No. E. Price $8.00. This is in old-style frame, and in fair condition; good value for the money.

Ten-inch round cell, No. G. G. Price $8.00. This is old-style heavy cell wall, and makes foundation something like that from the Given press.

Ten-inch round cell, No. I I. Price $8.00. Similar to No. G G.

Ten-inch round cell, No. E E. Price $9.00. This will make fair medium brood foundation. Is in fair condition.

Ten-inch hex., No. 1655. Price $15.00. This is a new machine, not suitable to sell as first grade, but a bargain at this price. It has thick wall, just right for medium brood foundation.

Twelve-inch hex., No. 1532. Price $25.00. This is almost a new mill, and practically as good as new, and a good one. Will make foundation 7 ft. to lb.

All the above machines are our own make. We have also the following:

Hex. Vandervort, 10½-inch, No. H H. Price $8.00. Will do well for heavy brood.

Nine-inch Dunham hex., No. V. Price $8.00. A good machine for the price.

Six-inch hex. Vandervort. Price $4.00. This is an excellent mill, but for one thing. From careless packing the two rolls are bruised in a streak from end to end. The foundation leaves the rolls readily, and there is room between the streaks for about two full starters.

Samples from any of above mills sent on application to those interested.

HURRAH FOR FLORIDA!

Providence permitting, your humble servant expects to make a bicycle-trip through Florida, commencing some time in the month of January. I shall first go to Jacksonville, and from there to Palatka, calling on A. F. Brown, of San Mateo, who is planning to conduct a branch of our business at that point. After that, circumstances and invitations must determine. Of course, I shall call on friend Poppleton, of Potsdam. By the way, friend Poppleton will tell us something about pineapples, in our next issue. Now, I particularly wish to know how much of Florida is practicable for wheeling. Some have said that the sand blocks one almost everywhere; but, dear friends, are there not footpaths around the sandy tracts? Where one can go on foot, I can generally ride my wheel; and a sandy beach, where it is not too soft, makes the finest wheel-track in the world. Very likely I shall not be able to accept *all* of your kind invitations; but I will as far as circumstances will permit. Possibly I shall cross over to Cuba, providing it does not take all "summer." A. I. R.

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.

Character of the Bee=keepers' Review.

It is Practical

In its character. It does not waste columns in the discussion of fine-spun theories, and those numerous phases of bee-keeping that may be interesting, but have no practical bearing upon the bread-and-butter side of the business. It aims to publish only such matter as will aid in making bee-keeping a more safe, pleasant, and profitable pursuit.

No Side Issues

Are tolerated in the *Review*. It may not publish so much matter as some of the other bee-journals; but in the amount of practical, valuable, helpful bee-keeping information furnished it is behind none of its competitors. It is not so much a question as to how large the journal is, nor how often it comes, *but what information it brings when it does come.*

Its Correspondents

Are successful, practical bee-keepers, most of whom have numbered their colonies by the hundreds, and sent honey to market by the ton, and who can write from experience articles containing information of some real benefit to honey-producers.

Its Editor

Has for seventeen years been a practical bee-keeper, and is thus in a position to choose wisely in selecting matter for his journal, and is also able to write from the standpoint of actual experience upon all subjects pertaining to practical bee-keeping—to criticise, if necessary, the views of correspondents.

No Supply Trade

Is run in connection with the *Review*, and for this reason the price must be such that there is a profit in its publication; but it leaves its editor free from even an unconscious bias, and his views in regard to hives, implements, methods, and devices, are wholly disinterested.

Typographical Neatness

Is one of the features of which the *Review* may be proud. Good paper, type, ink, and rollers, and a good pressman, are employed, and engravings used when words can not so clearly describe. This neatness may not add to the value of the information given, but it does add to the comfort and enjoyment of those who read it.

In Conclusion,

The *Review* gives reports of the work done at the Michigan Experiment Apiary—gives them as soon as possible after the work is done, while they are of a fresh and newsy character. It also gives Hasty's monthly three-page review of the other bee-journals, as well as extracts and editorial comments. The price is $1.00 a year, or $1.25 for the REVIEW and the book "Advanced Bee Culture."

W. Z. HUTCHINSON, Flint, Mich.

World's Fair Medal

Awarded my ***Foundation.*** Send for ***free samples.*** Dealers, write for wholesale prices Root's new ***Polished Sections*** and other goods at his prices. ***Free*** Illustrated Price List of every thing needed in the apiary.

Bell Branch, Mich. **M. H. Hunt.**

420 Lbs. Average

Is what my bees gave that I moved to the mangrove; those at home, 300 lbs. each; ***5-banded bees, too.*** Queens, ***bred*** for ***business*** from this stock will be sent in 1895 for $1.00 each until May; per doz., $8.00. Circular free.

J. B. CASE, Port Orange, Fla.

Florida and
ALL Southern Bee=keepers,

Do you know that the freight rates (by water) are one half less from *here*, than from any place you can obtain a full line of supplies.

Rate on bee-hive material, to

Jacksonville, Fla.,	18c	per	100.
Palatka,	" 34c	"	"
Daytona,	" 46c	"	"
Cedar Keys,	" 55c	"	"

New circular upon application.

I. J. STRINGHAM, 105 Park Place, N. Y.

8 Numbers for Only 10 cents.

Yes, we will mail to any **NEW NAME** the last 8 numbers of the **AMERICAN BEE JOURNAL** for 1894 for only 10 cents (stamps or silver); or, if you will send us $1.00, we will credit your subscription till Jan. 1, 1896, and **ALSO** mail you **FREE** a copy of Newman's "Bees and Honey"—a 160-page bee-book, having over 130 engravings. **THINK OF IT**—60 copies of the "American Bee Journal" and a 160-page bee-book—all for $1.00! Take the 8 numbers for 10 cents first, if you prefer, and then by Jan. 1, 1895, send in the remaining 90 cents, and we will mail you the book, and the "Bee Journal" for 1895. The 8 numbers can be ordered any time during November and December. Single sample copy free. Address

GEORGE W. YORK & CO., 56 FIFTH AVE., CHICAGO, ILL.

13 Carloads of Supplies.

This is the amount we have distributed in a single season, of Foundation, Dov. Hives, Sections, Extractors, etc. Therefore, if you have *little money* and want that little to go as far as possible, remember that we are headquarters in the west for all goods in our line; by doing so great a volume of business we sell goods cheap. If you have *the money*, also remember you can make it earn a big interest by availing yourself of our discounts for early orders. In either case you should write us and tell what you will likely need. It will pay you. We sell Root's goods at Root's prices, and can save you freight.

The new polished sections and all other late improved goods kept in stock. Send for our large illustrated catalogue, free for everybody, everywhere, especially

FOR THE WEST.

Joseph Nysewander, Des Moines, Ia.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

Vol. XXII. DEC. 15, 1894. No. 24.

STRAY STRAWS

FROM DR. C. C. MILLER.

A BEE'S EGG is $\frac{1}{14}$ inch long and $\frac{1}{70}$ in diameter—five times as long as it's thick.

A NOVELTY in the way of honey-packages at Vienna were little glass casks with aluminum covers.

THE *British B. J.* says giving bees wet combs to clean up at the time of uniting will make them fight.

A. I. ROOT is all right, but "The A. I. Root Co." is better, and the change of name ought to have been made before this.

ALL RIGHT, friend Root, I've been much interested in the Salvation Army, and will learn some of their hymns first chance.

INCREASED ADULTERATION of comb foundation is complained of in Germany. Fortunately that doesn't trouble us here yet.

"ALACK THE DAY when a man can not speak well of his friends for fear he will be accused of self-interest," says Hutchinson. "Amen," say I.

REFERRING to that statement on page 912, I saw in a foreign paper lately a similar statement, preferring coffee A to granulated sugar for feeding.

"WHO CAN SAY how much of the anæmia, headaches, chorea, and other ailments of schoolchildren, is due to the eating of glucose candy?"—Dr. Eccles in *N. Y. Med. Journal.*

A CONTEST in making foundation with the Rietsche press took place at the great convention at Vienna. One man made 5 sheets in 7 minutes; another in 7½ minutes, and another in 10.

SOMNAMBULIST has a good report of the St. Joe convention, in *Progressive.* I didn't see any one there that looked like a sleep-walker. Who is he, anyhow? [I know, but dare not tell for fear I'd be wrong.—ED.]

"AND THERE IS a pitch-dark room, where some day they hope to experiment with bees." So says J. E. Jenks, in *Harper's Young People,* about the insectary at Washington. Will friend Benton or some one else tell us what that means?

"TRAVEL-STAINED" is not the happiest word to apply to sections somewhat darkened, if I am correct in the supposition that the darkening occurs principally from bits of dark wax being deposited on them from the brood-combs.

GLEANINGS and *A. B. J.* are emphasizing the fact that bee-keepers can't do without bee-journals; but don't you editors get to holding your heads too high, for I give you notice that bee-journals can't get along any better without *us*, the subscribers.

A QUEEN isn't very much of a queen if she can't lay half a mile of eggs in her lifetime. [This seems like a big whopper of a statement; but perhaps it is all right. To verify it with figures scares me; so I'll try to swallow it, since it is dished up by Dr. Miller.—ED.]

THE LUBRICANT used in making foundation at the Vienna contest was: One part extracted honey, two parts water, and three parts alcohol. This was on the Rietsche press, but I suppose it would be all right for any foundation. [Why didn't they use soap? It's far cheaper.—ED.]

A FROZEN BIT put into a horse's mouth is simply barbarous. It takes a good while to warm it by blowing your breath on it. Lay it against the horse's coat, then blow on it, and see how much sooner you can warm it. [This is one of the things the doctor knows.—ED.]

BALDENSPERGER, in *B. B. J.*, indorses Cheshire's statement that *Apis dorsata* migrates at certain seasons, and that they can not be kept back from these journeys any more than "swallows or storks may be kept back from flying to southern climes when winter approaches."

TO PREVENT crystallization of sugar-syrup, *L'Apiculteur* recommends adding a little common salt. [Fudge! leave out the salt and all such, and make the syrup thinner, half and half. I don't know about the salt; but the acids are not reliable, and too much, I opine, would be dangerous.—ED.]

Friend Norman shows on p. 902 that I've gone all wrong on the Layens hive. But you see it's all the fault of Mr. Bertrand, who will persist in printing the excellent *Revue Internationale* in French, instead of printing it in English, that any one might read and understand.

L'Apiculteur reports a case in which a bee-keeper left some bees with a farmer, A, who rented his farm of B. A got behind on his rent; B levied on the bees and sold them, which the law allowed, because B had not been previously notified who was the real owner of the bees.

Extractors with the driving power at the bottom, so as not to be in the way of the free handling of the combs, are among the late introductions in Europe. [We in America get at the same result in a simpler and less expensive way—a beveled gear, shaft and handle outside of the can.—Ed.]

Michigan State Agricultural College Experiment Station encourages trial of rape as a forage plant; but I'm afraid it won't help bees much, for the kind recommended, Dwarf Essex, does not blossom the first year, and the Hybrid Bird rape, which is an annual and a great bloomer, is comparatively worthless as a forage plant.

The *American Bee keeper* says no better place could have been decided upon than Toronto for the next N. A. B. K. A. convention, but warns its readers to be on the lookout for exorbitant rates for board and lodging. The Kanucks did the nice thing by us when the convention was there the last time. [And they'll do it again.—Ed.]

Editor York was banqueted along with a lot of editors and publishers, and it had a good effect on him. Getting in such a nice crowd he concluded he was only a single individual, and in an editorial report he uses the singular number throughout, using "me" instead of "us." That's right, George; a man who has the snap you have should get in front of the procession among the progressives.

A super-clearer described by C. Davenport, in *A. B. J.*, consists of a bottom-board set on top of the hive, and the super set on this, with a hole in front large enough for one bee to pass out easily. Put on at night and take off empty next morning. As the entrance opens outside, there's nothing to hinder robbers entering; but after 13 years' trial, generally with 300 colonies or more, he has never had trouble with robbers.

Mailing queens to Australia has been a losing business. C. Mansfield, in *A. B. J.*, lays at least part of the mortality to the food absorbing turpentine from the pine wood of the shipping-cages. On reaching Australia the candy tastes plainly of turpentine, and in one case he put a fresh queen and bees in a cage received, and every bee died in three days. [If the candy-hole of the cage is painted with paraffine, this could not be. All our cages, whether for foreign or domestic use, are so treated. The trouble, in our own case at least, has not been from the wood, but from the adulterated sugar that we *supposed* was pure. Since discovering this fact we have had a fair measure of success.—Ed.]

GENERAL CORRESPONDENCE

LOCATING AND MANAGING OUT-APIARIES.

A VALUABLE AND PRACTICAL TREATMENT OF THE SUBJECT, FROM A PRACTICAL MAN.

By E. France.

I have several letters from different parts of the country, asking advice about starting and managing out-apiaries. I will copy a part of one of them, as I think some other man who has several out-apiaries will give his plan, or manner of handling out-apiaries, etc. I know we don't all manage our out-yards the same way; so if there are several plans laid out, the beginner can choose for himself, or, perhaps, combine some parts of each to suit his fancy. Here is the letter:

> I am thinking of starting some two or three out-apiaries besides the home apiary, and I am at a loss to know just the best way to conduct them. I have become acquainted with your name through Gleanings, and know that you have several yards besides your home yard, so I have concluded that your counsel would be worth something if you would be so kind as to give it. What I want to know is this: What arrangement do you make with men who take care of them? and how do you pay them? I think Captain Hetherington does not have any help. My plan is this: To put out two yards, of 50 stands each, next year, and get some one to just watch the swarms, and hive them for me; and I had thought of paying 50 cts. a swarm, while I will tend to the rest of the work in connection with farming, as they are a little uncertain. Do you think 50 cts. a swarm is too much? Do you think it is best to work for comb honey alone, or comb honey and extracted together? We have always worked for comb honey alone.

He says bees pay only in connection with farming. Then follows the address, but I can not make it out. It is somewhere in Indiana. I find that a great many people are very careless in giving their name and address. By all means, write names plainly. After consulting several good scholars to make out the address, I wrote to him saying that I would answer him through Gleanings, posted the letter, and it went to several postoffices in Indiana and Ohio, and then came back to me, marked "Could not find him." But now to answer his letter and several questions from other parties, on the same subject.

In the first place, our friend will find he has something to do besides farming if he works two out-apiaries of 50 colonies besides his home yard, and does all the work himself except hiving swarms. I should say that 50 cts. a swarm would pay for the hiving if that were all. But how about watching for swarms? Then is the man who furnishes the location to have nothing for his bother in having the apiary of from 50 to perhaps 100 colonies on his place?

WHERE TO LOCATE THE OUT-YARDS.

First, let us locate the apiary. Now look sharp, for very much depends on the location; in fact, more than half of the success of the apiary rests on this one point. See that the place has good pasture for the bees. We in this north country would want plenty of white clover and basswood timber, and river-bottom land with fall flowers. Any way, be sure of good bee-pasturage. Then I want a good natural windbreak—hills or timber, or something to break the north and west winds.

Now, if we have found all this, is the right kind of man or family living on it? If the family are all right, what are the neighbors? Are they of a class that will steal, or make you trouble?

If the people are all right we will look the place over. Is the place where we want to put the bees too near the house or barn or stack-yards, where they have to come with teams to stack and thrash the grain? It won't do at all to have horses very near the apiary when unloading grain or hay, or thrashing, or any thing of that kind. A bee in the ear of a horse makes it wild. Most horses are afraid of bees. Our apiaries are from 15 to 30 rods away from house or barn or stack-yards, and all the out-yards are from 30 to 100 rods from a public road. Most of them are in pasture land, free to all kinds of stock. Stock don't do any damage to our large quadruple hives, but keep down the grass. It saves us the trouble of mowing. Locate your apiaries three or four miles apart; farther would be better. Of course, other folks' bees must be taken into consideration. Don't overstock the pasture. Better go two or three miles further than accept a poor location, for we have to go with team; and when on the road, two or three miles further is soon traveled. We go eight miles to some of ours.

One more thing: If you are likely to get a load of bees or honey, it is handy to load up right in the apiary. After we have worked the apiary all over, the bees will be cross. We can not take the team to the wagon where it is in the apiary, to hitch on. We must have a down grade, away from the apiary. It should be 15 to 20 rods or more, then the wagon can be moved by hand to a place where it will be safe to come with a team.

Now, if we have found the location that will answer our purpose, we shall see what terms we can make with the owner. All our out-apiaries are planted on the same conditions. We give 25 cts. a year for each colony that we have on the ground, spring count, counting them about the last of May, or at a time when we are sure there won't be a less number. The land-owner has nothing to do with the bees, except, if any thing happens that requires our attention, he is to let us know, and we look after them. There is no watching for swarms, and no swarms to hive.

We work all our out-yards for extracted honey. We think it is less work for the money we get out of the business.

HIVES.

If I were starting new in the bee-business I would use the L. frame, standard size. I would use a quadruple hive, chaff-lined, three stories in summer and two in winter, and winter on the summer stands.

WHAT KIND OR RACE OF BEES?

My candid opinion is, there is not much difference. With good location and good management, any of them will give lots of honey. But my choice are the gray Carniolans. They will gather as much honey as any; are very prolific, and do less stinging.

Now, having located the apiary, made terms with the land-owner, and having bees on the ground, we will proceed to run the apiary for extracted honey. We will begin with the fruit-blossoms. If there is any considerable amount of bloom we can open hives without danger of robbers. We will suppose the bees are in L. hives, two stories high. Take out all the combs and clean out the hive; clip the queen's wing one side. You will find that all or nearly all the brood is now in the second story. Put all the brood down in the lower story. If there are not enough combs with brood in them to fill the lower story, perhaps some other colony may have more than enough to fill the lower story. In that case, give the surplus to the weaker ones. Put the honey-combs in the second story. If there are empty combs, and the lower stories are full of brood, put the empty combs above. *Caution.*—If the bees average weak, and there are not combs with brood in them enough to fill the lower story, then I would wait until they have enough, as the upper story is warmer, and a weak colony will build up faster with the brood above. But, clip your queens at this time. We can now leave the yard for ten days; then, if there were no queen-cells left when here before, it is not possible for a swarm to have gone off; and here in this country it is not likely that a swarm has been out. Dandelions will be in bloom here then.

We will now look the yard over again. If there are any weak colonies, they should be strengthened by giving them brood from the strong. If there is more brood in the yard than to fill all the lower stories, then the surplus can be used to make new colonies. In making new colonies, be sure to leave the old queen in the old hive. Fill up a lower story with combs of brood, with some honey. Put the honey at the back of the hive; take some bees with the combs—enough to make a good strong colony. In fact, give them more live bees than you want to stay there, because the old bees will go back to the old hive. We can take these combs and bees from several colonies. They won't quarrel or fight at all. We may make one, two, or several new colonies at this time—it depends on the strength of the apiary. Those new colonies have no queen; they won't swarm under 12 days. The old ones won't swarm, because we have taken away their surplus strength. We will now leave them ten days; but before we leave, be sure that there are no queen-cells coming on in any colony. I would leave those new colonies one story high. We use a solid honey-board. Lay that on top of the one-story, and cover over that.

In ten days we are back again. Now, if there is more honey coming in than enough to keep the bees, we will extract all we can get. This extracting will be dark, and the bees will soon be gathering white honey. For that reason we want to clear the combs of dark honey; and while doing it we will do as we did before —keep the lower story full of brood; and if there is more brood, we will make new colonies as we did when here before. Now we will put on the third stories, filled with empty combs, if we have them. If we have no combs, put in frames filled with foundation; leave no queen-cells in the old colonies; the new colonies made ten days before will now want the second set of combs, or foundation, and their queen-cells removed, except one, that we will leave to hatch; also, give these colonies one egg-comb from the old stocks, and what new colonies are made this time can be supplied with a queen-cell from those new ones made ten days before. After this, if honey pasturage is good, extract once a week while the season lasts, working all up to three stories high. Keep the brood in the lower stories, and extract from the two upper ones. Watch the harvest, and give the bees time to fill the upper story solid full of honey to winter on. All they get more than that you can take in September.

We don't get any honey here after the basswood, about the middle of July. We let them fill up well on basswood, and then let them alone until the middle of September; then I take off the third stories and pack them away in the storeroom. At this time I see that the second story is full of honey; take out of the second stories all combs not full of honey, and fill it out from the third; see that all have that much, and pack away in the house the surplus; fill the top chamber with straw, and you are ready for winter.

The next spring, when there are warm days in March or April, look into each colony and see if they have plenty of honey. If they are short, take out empty combs and put in full combs of honey from those stored away in the fall. Be sure they have plenty; they will use up honey pretty fast now, as they should be raising brood fast.

A TENT EXTRACTING-HOUSE FOR OUT-YARDS; HOW TO MAKE.

I omitted to build an extracting-house. You want one in every yard. We use a tent, just 10 feet square, outside measure. Put up a frame in each yard; get 4 posts, 10 feet long; set them 3 feet in the ground, 10 feet square, outside measure. Now nail on at the bottom a ten-foot board on each side, a foot wide, then nail around the top four more boards a foot wide, 10 feet long; that will leave a space of 5 feet between the upper and lower boards. Get 80 feet of thin cotton cloth, a yard wide; sew two breadths together, 40 feet long; that will just go around your house for siding, between the upper and lower boards. Sew on both upper and lower edge some strips 3 or 4 feet apart — leather — to tack through in putting on the siding. For top cover we use eight-ounce duck that will shed rain if we have a shower while we are there. Put up a gable-end roof, raised 3 feet in the middle. To do that you want two boards a foot wide, 10 feet long; set one up at each end, and nail to top and bottom board, and slant off the top corner to fit the pitch of the roof; then nail in at the top a 2x4 scantling, 10 feet long; chamfer off the upper edges to fit the pitch. Nail on to the end boards some strips of boards to make a ladder to climb up when you put on the top cover. Make the cover to fit your frame, and sew on to the bottom edge some strips of leather to tack through when you put it up. You want a frame in every yard; but the cloth part you can take down every night and put it in a sack and take it home. One cover and siding is enough for all the yards. Each yard must have a frame. With us it takes just five minutes to put on the cloth. For a door, we can leave one end of siding loose at the bottom, or can put in a screen-door.

Platteville, Wis.

[There are no bee-keepers in the whole United States who have their work better systematized than E. France & Son; and this applies not only to their bees but to their fruit-growing. When I visited them this past summer I could readily see one secret of their success — the evidence of a liberal use of good brains to lessen the labor of the hands. I am sure no bee-keeper can afford to fail to read carefully what Mr. France has to say, even though he may not now or ever expect to have out-apiaries. I can not refrain from saying that the senior France not only recommends, after having tried other frames, the Langstroth, but the eight-frame size of the hive. No deep frame is adapted for tiering up, and hence the Langstroth, if for no other reason, should have the preference.—ED.]

EXTRACTING IN NOVEMBER.

ADVANTAGES OF A REVERSING MACHINE.

By S. E. Miller.

As it happened this year, we had very little extracted honey, as all strong colonies were run for comb, and the weak ones gathered little more than enough to keep them in stores; so autumn found us with no extracted honey on hand. However, some colonies filled their upper stories pretty well with autumn-flower honey, and this, owing to pressure of work, remained on the hives until Nov. 23d (some is on yet). On that day I took off four supers; and as the day was warm I tried to extract some, as we had an order from our best customer for two or three gallons; but it was too cold, and would not work. I therefore took the supers into father's kitchen, as his house is nearer the apiary than ours, and placed them beside the cook-stove. The following day, just after noon, I commenced extracting, and succeeded in getting most of it out with the Cowan Rapid. I would place the combs in the basket; turn rather fast until about half was thrown out, then reverse and turn at about the same speed, until about half was out of the other side of the combs; then increase the speed till it hummed like a buzz-saw, then reversed again, and threw the rest out of the other side. In this way I succeeded in getting the combs pretty clean, though, of course, not as in warm summer weather. With a non-reversible extractor it would have been almost impossible to accomplish the work—at least, without a great deal of extra work, taking out and putting back the combs, and perhaps breaking many. Of course, it is not often necessary to extract in November; but if circumstances should be such as to make it necessary, the Cowan will do the work if the combs are warmed, as explained above. I have never had any experience with any other reversible extractor; in fact, I have never seen any thing more than a cut of them; but if I may judge from appearances,

THE COWAN RAPID LEAVES NOTHING MORE TO BE DESIRED,

and I believe that, with the multitude of bee-keepers, it will give greater satisfaction than any of the self-reversing or automatic machines. We have had our Cowan for two seasons; but, owing to running mainly for comb honey, and poor seasons, I have had little use for the extractor; but in what little I have used it I find that one will soon learn the trick of reversing without entirely stopping the machine; and, considering that the crank of automatic reversing machines must be reversed in order to reverse the combs, I am inclined to think the Cowan the most rapid of any machine of the same number of combs capacity. Of course, this is mainly theory with me; but can any one prove by actual test that an automatic machine will extract any more honey in a given time? The Cowan is built for business, and is not likely to break down, as I think I gave it a very thorough test, as spoken of above. I should certainly have been afraid to run at such speed the Novice we used to own as I run the Cowan.

Bluffton, Mo.

[The foregoing may seem like an "advertising puff," but it came unsolicited. If the reversing machines have substantial advantages over the non-reversing, they should be set forth in the reading-columns. I can not understand why any one should argue for the old non-reversing extractors. They are to the reversing machines what the old muzzle-loading firearms are to the breech-loading guns. And yet some prefer the old style, and think them better, and so the case is with extractors. I may remark, inadvertently, that I have been out hunting of late, under the doctor's orders, and I think I know something about guns as well as extractors. Say — outdoor air is the best tonic in the world.—Ed.]

RAMBLE 122.

AT SAN LUIS OBISPO AND OTHER PLACES.

By Rambler.

San Luis Obispo (Saint Louis the Bishop), or San Luis, as it is called for short, is something of a city for this portion of the Pacific coast. Its population is about 3000. It was founded by the early Spanish padres, and a mission was planted here. It is in a good state of preservation, and, having been modernized, its ancient appearance has in a measure disappeared. The chief industry of the town seemed to be the saloon business, one bearing the name of "Blazing Stump." From an outside observation, and the sounds of music and shouting heard within, the stump was blazing fiercely. San Luis has heretofore held commercial intercourse with the outside world through Port Harford and the coast steamship lines; but the city now expects a boom in all of its interests from the fact that the Pacific Coast Railroad has penetrated the surrounding mountains, putting the city within a few hours of San Francisco, and the progress of the road south will put it in close connection with Los Angeles, the other metropolis of California.

When in Ventura, Mr. Mendleson, having in mind my desire to learn of the honey resources of San Luis Co., referred me to a Mr. Butcher. Said Butcher was Mr. M.'s agent for the sale of honey. I accordingly hunted up the gentleman, and found him to be a butcher only in name. By nature he was a hardware merchant; and at certain seasons of the year, when Mr. Mendleson had honey to ship to him, he made a lawful mix of the sweets in a trading way, with his ice-cream freezers, saws, and hammers. I soon discovered that Mr. Butcher was not heavily charged with information in relation to the honey production in Saint Louis the Bishop's Co. In fact, come to reflect soberly upon the subject, it is too much to expect that a fellow-mortal, indulging in the daily habit of weighing out wire nails, selling wire fences, egg-beaters, carpet-stretchers, sausage-stuffers, and other destructive implements, could talk euphoniously of queen-bee parthenogenesis, or even of Dovetailed hives and bee-spaces. Mr. Butcher did not know of a bee-keeper in the county—not even the German grave-digging apiarist—and did not believe there was one; if there was, he surely hid his candle of bee-lore under a bushel. Honey was shipped in from San Francisco in small packages, but he preferred to sell Mr. Mendleson's honey because he was satisfied it was pure. After thus scoring a good point for Mr. M. and Ventura Co. honey, my Butcher was called away to weigh out some more nails, and another gentleman took up the conversation. I soon discovered that this man had been there with a bee-veil on, and had produced his tons of honey. The tons, though, were produced away back east, in Missouri and in Ohio, where he originally came from. Referring to Ohio I asked him if he was acquainted with Gleanings.

OUR FIRST COYOTE.

"Oh! yes," said he. "I always read it with profit; but since I came out here, about a year ago, I have not taken it. And, by the way, I wonder where that Rambler fellow is now who used to write for it."

I smiled a little in my sleeve. It was a different smile from my Wilder deer-sign smile—not sarcastic, but a sort of mellow fraternal smile. I handed him my card, whereon were my credentials. He seemed very happy to meet the Rambler, and we just fraternized with alacrity, and with a sort of Salvation Army cordiality, for the space of half an hour or more. The gentleman lived a few miles down from town, and his name was Brown—J. M. Mr. Brown gave me the information that there was a large number of honey-producing flowers, but this year there seemed to be no honey in them, and bees would barely make a living. He clinched his information by remarking that he believed it not much of a honey country any way.

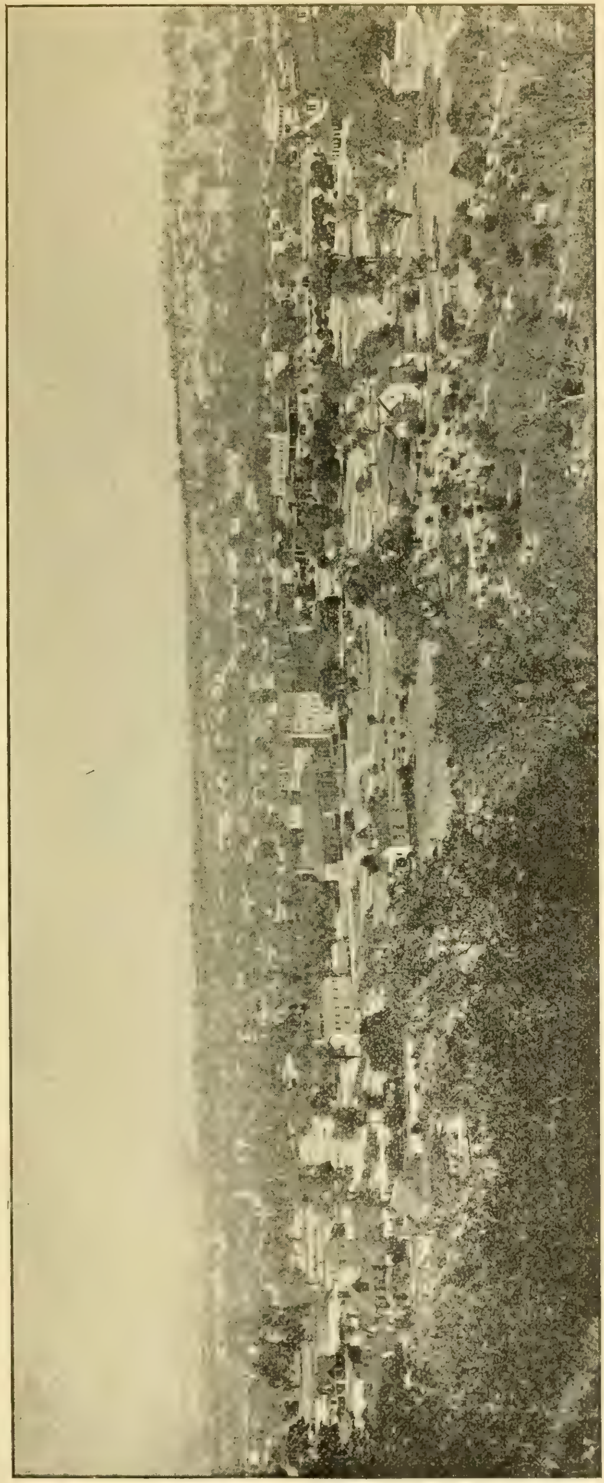
Like all true bee-keepers, Mr. Brown had a few bees, and was determined to find out the capabilities of the country. He advocated the Hoffman frame and all modern appliances, and believed, after visiting different portions of the State, that Saint Louis the Bishop's County was the best portion of it, if not for bees, for other general agricultural purposes. I was glad to see Mr. B. so enthusiastic over the country of his choice. By so doing he showed forth the true California spirit.

Mr. Brown's son-in-law here put in an appearance on a big wagon. He also had been interested in bees—a sort of reflection, perhaps, from Mr. B.; at any rate, introductions and another time that kind o' loosened up our heart-strings, was indulged in. The Rambler was urged to share the hospitalities of the Brown mansion; but as it was several miles away from our route I cast my regrets at them, and we parted with mutual wishes for prosperity and long life.

Your readers probably remember the episode of Billy and his teacher. Teacher says, "Now, Billy, it is south in front of you; what is it behind you?" "My coat-tail, sir," says Billy, promptly, giving a side cant to his head to get a view of that appendage. Well, early the next morning San Luis Obispo, like Billy's coat-tail, was behind us, and we were again enjoying the enchanting views attendant upon climbing up through the winding course of a canyon, which we surmounted when we crossed the Cuesta Pass, and struck into the tail end of another canyon. We were now in a country admirably

COWGIRLS.

adapted for the home of wild animals—no habitations for miles; wooded places and brush; little side-canyons, just enough for their lurking-places. Mr. Wilder had been playing the deer-racket so much that he began to hanker after other game; and right here, while going up grade at a ruminating pace, he espied a coyote shambling along, about 400 yards away. There was a scramble for the rifle through the little square window in front of our wagon cover. The coyote was very accommodating, and halted. Bang went the rifle; a little puff of dust a few inches below the coyote led that animal to dig his toe-nails into the ground, and get away with lightning rapidity. Another ball or two followed him, but he escaped into the brush. Mr. Wilder regretted the escape, for every coyote's scalp is worth $5.00. I consoled him by telling him that, in all instances where there was a bad beginning, there was usually a good ending; and, citing him to the bad beginning on deer, said I, "*We* will get the next coyote, just as *we* did the deer."



THE PASS OF THE OAKS.

"*We!*" says Mr. Wilder; and such a bygone, scornful expression came over his face that utterance was checked for some little time.

When we debouched from the next canyon we entered the Santa Margarita (Saint Margaret) Valley. The chief characteristics of this region were the rolling nature of the country, the number of stock-ranches, and the number of horsewomen we encountered. They were dear young women. Mr. Wilder put on his eye-glasses (a habit he has when he wishes to bring out all of the salient features of the landscape). The first dear young lady had been roping a cow, and was leading it to the corral in triumph. This pastoral scene brought to mind a verse from the poets. The indulgent parent desired his daughter to whistle. He said:

"Whistle, daughter, whistle,
  And I'll give to you a cow."
She said, "I never whistled,
  And I can not whistle now."

He said, "Whistle, daughter, whistle,
And I'll give to you a man."
She said, "I never whistled, father,
But I'll do the best I can."

This dear daughter whom we met had evidently a predilection for the cow—sensible dear!

A little further along, two more dear young ladies were rounding up a band of horses. True to the instincts of a dear-hunter, (dear) Wilder was anxious to mingle in the fray. These dears had evidently progressed from the cow whistle, and might be indulging in the more ambitious whistle for the man. I was determined my partner shouldn't be the man; put whip to the ponies, observing that the dears were remarkably vigorous and healthy in appearance. I further observed that they could rope a horse better than W. could, and he would only make them a subject for jest in his efforts to help; that they were evidently in their sphere, "and I am glad of it," said I. "It is just as well to have cowgirls as cowboys."

We got safely past the dear ones; but there was something wrong in my remarks, for the watchful fates somehow turned the ankle of my pony Reina, and she went lame. We had some anxiety over it; and when we came to a wayside house in the middle of the afternoon I was willing to camp. A near approach to the house proved it to be a wayside saloon. There were three women under the awning, and a Spanish youth. I wished to make amends for what I had said about the cowgirls, and found these ladies, of various ages, so sociable that I wanted to camp right off. One of them, furthermore, reminded me of an old maiden aunt back east.

"Why, Wilder," said I, "just see how homelike and sociable it looks under that awning. Then, they say there's no water until we get to Creston. Our Reina is lame, and they are so sociable."

But Wilder was inexorable, just as I was in the recent dear-episode. He called them all old bilks, or something to that effect; didn't like their saloon principles, and didn't believe it best to stay. The Mexicans' eyes followed our movements, with a basilisk look, and I finally concluded, with Mr. Wilder, that we had better proceed. From his remarks about the ladies I expected his pony Keno to get lame; but he did not. Another coyote crossed our path, but vanished too suddenly for a shot. We found plenty of water along the way, proving that the three women saloon-keepers were lurers, and we rejoiced that we escaped their lures. We camped that night in Creston; and the next day, after a slow and toilsome drive with our lame pony, we entered the thriving town of El Paso de Robles (the Pass of the Oaks), called Paso Robles for short. In all the country passed over, there was no pasturage for bees, and but few were seen upon the flowers; and, so far as we could learn, there were no bee-keepers except in a very small way. The Pass of the Oaks is a beautiful country dotted with the noble oak-trees. The town is noted for its hot sulphur springs, and is much of a health-resort. We camped under one of the oaks shown in the photo, and here we will rest until our next ramble.

THE FAMILIAR FLAVOR OF HONEY.

WHENCE DOES IT COME?
SHADES OF THE SUGAR-HONEY QUESTION.

By C. W. Dayton.

It has been asserted, that the natural flavor imparted to honey through the manipulation of it by the bees is a musty flavor. Flavor is supposed to be derived from the wax of the comb; also, it is claimed that formic acid is added by the bees. Together with the fact that it is by a particular set of bees that the honey is placed in the cells, goes the other fact that these same workers take special pains to retain said honey in their honey-sacs for a considerable space of time. And it seems reasonable to inquire whether this retention should not render up some sort of account. It was observed that, when a colony stored 10 lbs. of thick sugar syrup per day, it retained the sugar taste; but if allowed to handle only 4 lbs. a day, it tasted like honey. When 4 lbs. of sugar, mixed with 6 lbs. of water, is fed, it may amount to about the same as slow feeding of thick syrup. The cause of the mentioned flavors is theory; but that nectar or syrup is retained in the stomachs of the bees is not theory. Evaporation or extraction of water from syrup or nectar is a matter of water and less water, and not a confusing change. Persons who were opposed to sugar syrup being changed to honey were known to partake of sugar honey at every meal for a week, mistaking it for sage; and one who had produced honey for many years pronounced the same the best *honey* he had ever sampled! For more than one reason it is not advisable to produce sugar honey; but before transforming into a mountain of opposition it is well to find a reason, and then make sure that the reason has a foundation. Even if there is not disclosed any avenue for pecuniary gain, it may not exclude the possibility of other advantage.

It was said of Faraday, that, had he possessed much wealth, it would have been an incumbrance to him, the care of it thwarting his more cherished plans. As reasonably insist that hens lay stale eggs as that the change in sugar syrup comes from waxen cells, or mustiness from bee manipulation; or, if bees do alter or digest it, there should be a limit to their ability in that direction.

This season I fed 100 lbs. of sugar syrup over and over again until there was very little left, to see of how many sections it would draw out the foundation. It constantly improved, so that the last was the best of all. Some appear to think there is a high wall on both sides, so that it is impossible to get out of the straight road—only to feed and feed. By a little progression it is discovered that the road would be most beautifully straight were it not for the perplexity of turns.

The bee-business is considerably like that of poultry. Where the feed can all be raised, or where there is saved what would otherwise go to waste, there is profit. But if the feed must be purchased, it affords a margin varying anywhere between profit and loss. If there is profit in sugar honey anywhere, it would be in California. In the East and North the seasons are too short and cold, and bees are more expensive. A colony can not be fed long before causing swarming. If not allowed to swarm, the bees sulk. When they sulk, there is waste; and if they swarm, there is greater waste of both time and feed. Then there is also an increase of travel-stain and irregular building. A little of such reduces a fancy product to second or third grade, and there is no hope for success short of every section perfect in appearance, weight, and quality of contents. With queens from eight months to a year old, they usually swarm before two supers are completed; and with still younger queens, not more than three or four supers. In "feeding back" to secure the completion of combs it amounts to a short "dash" only, as a "wind-up" of the harvest or working season. We choose particular colonies at a particular time; but when feeding is to be continued long, conditions of the bees should be taken into consideration when there is bound to be a waste of time and syrup.

Difficulty that would hardly be expected early in the season, is, in getting the last cells sealed after the combs are filled with honey. Where only ounces of feed is really necessary, it takes pounds to *complete* the work. Then, again, late in the season, instead of storing in the supers it is crowded into the brood-chamber, and much labor by the old bees, with few young ones coming on, will soon depopulate the colonies. Between these times there is intermittent swarming and loafing, and by the most skillful management it will be a matter of luck if the colonies are in disposition to do effective work in sections half of the time. When keeping bees in a cold climate, it seemed that much warm weather would assist and perfect certain manipulation. In trying the warmer climate, there are found other modifications and difficulties undreamed of. For example: In Iowa I thought absconding in spring due to winter-sickness, and other absconding to starvation. In warm climates they appear to leave the hives to break the monotony, being neither sick nor out of food. As they fly out and return, the queen seldom gets back into the hive. Then a worthless queen is reared from a three-days-old larva. The better the queen, the more liable she is to decamp.

When a non-swarming device has been perfected, and several other discomfitures brought within restraint, and an artificial method of charging liquids with formic acid has been discovered, it will be time to talk sugar honey. As the subject now rests, it plays the *role* of a mighty sleeping monster, ready to awake and devour at any moment, the ghostly dread of which is more troublesome to bear than a hand-to-hand encounter with the identical animal.

Florence, Cal.

[On carefully reading the foregoing I do not think that there is any thing in it that advises the feeding of sugar syrup for honey; on the contrary, it suggests a good many difficulties in the way of producing such a product.

I am satisfied that syrup, when fed thin enough, and taken down by the bees slowly enough, and sealed up in combs, has a very distinctive flavor of honey. But it is not floral honey, because it does not come from the flowers; and the fact that some like sugar honey better than other honey may be another way of saying that a good many people prefer sugar syrup, pure and simple, to put on their pancakes, to any honey that was ever produced from flowers. The fact is, sugar syrup is the purest of sweets; is mild in flavor, and with some people it seems to be more easily assimilated. Admitting, then, that sugar syrup, when manipulated by the bees, may acquire a certain honey flavor—which I think can not be successfully disputed—that is no reason why it should be produced.

Mr. Dayton's analogy is a good one; i. e., the poultry business pays when we do not have to buy the feed—or, rather, when they can utilize what would otherwise be wasted. But if we must *purchase* the feed at a country store, it is doubtful whether there is any money in the egg business. So with the honey business.

The sugar syrup itself alone, at the least calculation, would cost from 2½ to 3 cts. But this simply represents sugar and water, half and half. The bees will evaporate it down to a consistency of 11 lbs. per gallon, waste a lot of it in comb-building and brood-rearing, and retain some of it, besides, not in their honey-stomachs, but into the true stomach, to be consumed for their individual use. Taking all of this into consideration, the fussing with feeding, the nuisance from swarming, a lot of unnecessary consumers from brood reared out of season, and the first cost of the sugar honey, the article would cost anywhere from 5 to 10 cts. more than real honey, because, in the case of the last-named, there is no expense for the nectar, no feeding, no robbers, and not necessarily a waste in brood-rearing. This sugar honey (at least, reports seem to say so—and what I have seen seems to bear out the statement), has a water-soaked appearance compared with floral honey. That being the case, it certainly will not bring a higher price than the best gilt-edged floral honey; and assuming that our sugar honey would bring as much, how much profit would there be left after taking off 5 or 10 cts. from the price realized in the open market?

There, now, have I said any thing I ought to have left unsaid? I did not intend at this time to bring up the sugar-honey question; but as nothing has been said on this subject of late, and I find there is in some quarters some speculation as to whether it would pay or not, it may be well to look over the figures a little before we think of embarking into what would certainly be a very questionable and probably a failing enterprise.—Ed.]

NOTES OF BICYCLE TRAVEL.

AT BROWNTOWN, WIS.

By Ernest R. Root.

My wheel-trip westward and northward from the home of Dr. Miller, some 150 miles, was dry and uneventful. It is sufficient to say, the Wisconsin roads and hills were rather more than I bargained for; and when I reached Browntown, Wis., along in the afternoon, I was more tired than I had been at any time on the trip. Just before reaching Browntown, however, I was afraid I might pass a bee-keeper and make it necessary to retrace my path. Down the road a piece was a man in a buggy. "Suppose he should be a bee-keeper," thought I. Although I was tolerably certain that I was on the right road, on reaching him I fired this question—not so much for its answer as to prepare the way for further questions:

"Is this the right road to Browntown?"

"Yes, sir."

"Do you know any bee-keepers by the name of Reed or Lathrop?"

"My name is Reed."

"J. H. Reed?"

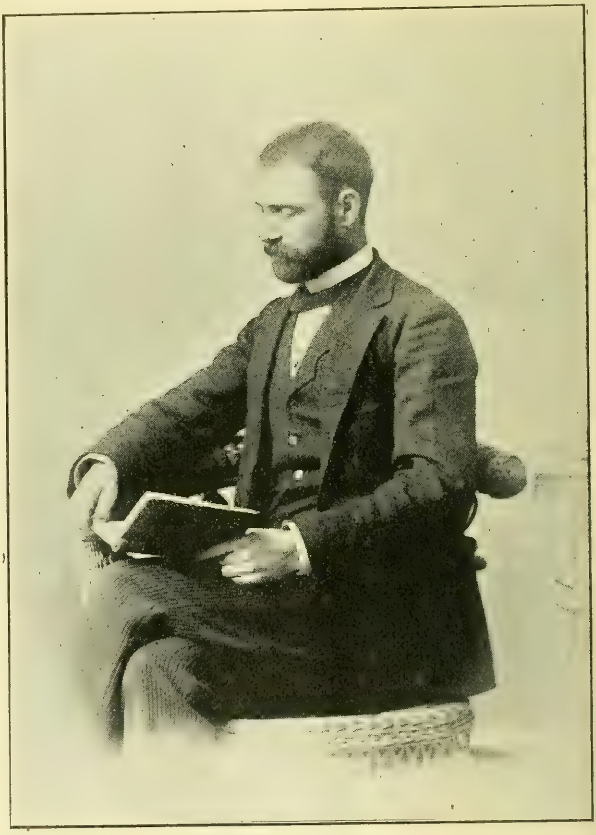
"Yes, sir."

"Well, I was looking for you, and, although I had never seen you, I was afraid I might pass by you," said I. "I should have been sorry not to see you, inasmuch as I have known you for several years by correspondence."

Mr. Reed then remarked that we sometimes have presentiments, and that perhaps this was one. We stopped, and chatted along the roadside for perhaps half an hour, during which time I learned that my friend, besides the misfortune of discovering foul brood in his apiary, and no honey, had met with the loss of an adopted son, who had been kidnapped. Mr. Reed was too full of trouble to talk very much about bees. I tried to console him as best I could, and then went on, leaving him to go back on the road some eight or nine miles over the road over which I had come, to his own home and yard. Just as I pulled out of the woods and rounded the corner, a beautiful valley lay stretched out before me, with a lakelet to one side. This indeed looked like a beautiful bee country, for it was through this section that the great basswood belt of Wisconsin runs.

In a few minutes more I stood before the station at Browntown. I inquired for Mr. Harry Lathrop, who, I was told, was station-master there. On making known my identity he could hardly believe his eyes, for he had not expected any one from Medina. Of course, as usual I was in a hurry. It being about 3 o'clock, Mr. Lathrop kindly made the most of the time at my disposal, until 6 o'clock that evening.

Before going further, I wish to explain that Mr. Lathrop is one who has written a number of times for GLEANINGS. His apiary, we illustrated in GLEANINGS, page 608, current volume. You will remember that there was there illustrated a sort of dug-out, or bee-cave, where Mr. Lathrop wintered his bees successfully for a number of years. He is an enthusiastic bee-keeper and wheelman, and, like myself, is interested in Sunday-school work; and somehow my heart knit to his as if he had been an own brother, and that from the brief acquaintance of only a few hours. Well, now let me introduce you to him.



HARRY LATHROP.

Mr. Lathrop was born in Milwaukee, Wis. March 6, 1856. At an early age he entered the railroad service at Mazomanie, Wis., and later took charge of the station at Prairie du Sac.

Here he made the acquaintance of the veteran bee-keeper Mr. J. J. Ochsner. Some of our older readers will remember Mr. O. as one of those who used to write for GLEANINGS years ago. Latterly we have not seen his name. Having some leisure time, Mr. Lathrop devoted it to the study of such bee-literature as he could obtain, prominent among which were the back numbers of GLEANINGS. After two years' practice with a number of colonies he was very desirous of possessing a working apiary; and providentially, as he says, he was at this time transferred by his employers to Browntown, in the southern part of the State, in the famous basswood belt. Here he bought all the bees in his immediate field, which consisted of a few colonies in various kinds of hives. These were transferred to the Langstroth hive. An occasional purchase of a few soon brought the number up to 150.

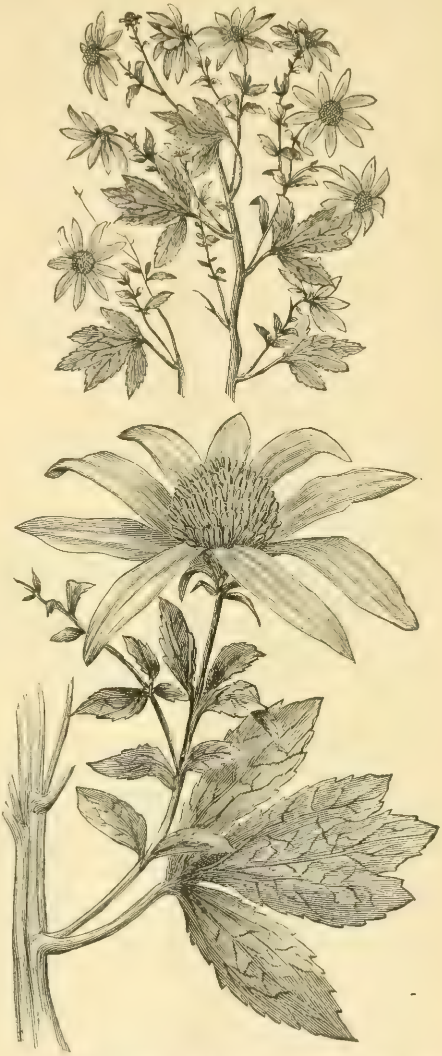
His apiary has been devoted mostly to the production of fancy comb honey, and later years, also, to the sale of bees and nuclei. He uses exclusively the eight-frame hive, and considers it large enough. The surplus arrangement is a T super without separators or queen-excluding honey-boards. Although he uses no separators he says he has no trouble in crating his honey, and it always brings him the best prices. At the time of my visit, I was astonished to see that the bees were roaring almost as if on basswood. It will be remembered that, only a few hours before, comparatively, the bees at Dr. Miller's were not only idle, but had done nothing during the whole season. The best part of it all was, although it was so late in the year, such an onslaught of honey at Lathrop's did not make his bees crazy to swarm. They seemed to have sense enough to know that it was too late to think of dividing up, and that it was their business to pile in the honey.

It occurred to me there, how nice it would be if we could only put our basswood honey-flows away back in the latter part of August or early part of September! This would solve the swarming question, and the bees would work right on gathering honey at a rapid rate, without let or hindrance.

Now, then, you ask, "Where did all this fine honey come from?" Mr. Lathrop did not know the technical name, but called it sunflower. I secured some fresh specimens, and had an engraving made, and here is the result.

Other specimens were sent to our State Botanist, who writes as follows:

My Dear Mr. Root:—The honey-plant proves to be another of the great order *Compositæ*, to which the asters, goldenrod, sunflowers, and many others belong. According to Prof. Cook's lists of honey-plants, this order contains a great many which invite the visits of the bees. This particular plant is *Rudbeckia laciniata*—the specific name, *laciniata*, referring to the cut lower leaves. *Rudbeckia laciniata* grows in low grounds along streams in Ohio and elsewhere, having a wide range. You do not state from what portion of the West the specimen comes, but the limits given in the manuals are "Canada to Florida, westward from Montana to New Mexico and Arizona." This indicates the presence of the plant in many honey-producing districts.



WILD SUNFLOWER—THE PLANT THAT YIELDS SO MUCH HONEY IN SOUTHERN WISCONSIN.

Wooster, O., Sept. 21. AUG. D. SELBY.

You see, the botanist seems to tell pretty well where it grows; for indeed the locality around Browntown answers to his description nicely.

Now you will ask about the quality of the honey. Well, it is of the very finest, and would be called by the consumer white honey, though a trifle darker than basswood or clover. Indeed, Mr. Lathrop has been enabled so far, I think, to get as good a price for this sunflower honey as for clover or basswood.

He secured from his apiary last season, all told, including clover and basswood, and this sunflower honey, something like 6000 lbs. from 85 colonies, and increased 27, besides attending to the duties of depot agent as well.

I might say incidentally, that Mr. Lathrop learned that it was not necessary to work with the bees so much as formerly. Indeed, his duties as a railroad man require him to do as little work with the bees as possible. So in a sense he handles hives instead of frames, and the bees and his splendid location do the rest.

After making the acquaintance of Mr. Lathrop's family, I took the train that evening for Platteville, some 40 miles further west. It was then too late to think of wheeling the rest of the distance, even if I had felt so disposed.

To be Continued.

THE HOME OF THE HONEY-BEES.

GRAPHIC ACCOUNT OF A VISIT THERE.

By Harry Lathrop.

How many bee-keepers scattered over this and other countries there are who would think it a rare privilege to be able to visit the "Home of the Honey-bees," apiary and factory, and see face to face the workers whose names have become so familiar through the reading of Gleanings! Well, that is just the privilege I have had, and I want to tell you about it in this article.

When Ernest came west on his bicycle-tour this fall he dropped in on me very suddenly, taking me completely by surprise. Of course, I did not know him, though I had met him once before at his home, twelve years ago. It did not take us long to get acquainted, and then how we did visit during the few short hours he remained with us! Before he left he extended to the writer a very earnest invitation to visit the Home of the Honey-bees at my earliest convenience. Not being in very good health, and needing rest and change, I decided to do so as soon as the honey season was out of the way. Accordingly, the 2d of October found me *en route* for Medina. From Chicago I took a night train on the Erie, which landed me at Sterling, a junction of the Cleveland road, at 8 o'clock A. M., Oct. 3d. This point is about twelve miles south of Medina, and I had intended to ride over on my wheel, which I had brought along; but a sprinkle of rain induced me to choose the less heroic but easier method of travel. I had only about ten minutes to wait for my train, and a short ride through a fine agricultural country, which reminded me very much of my own Southern Wisconsin, brought me to Medina.

As the train approached the village I was on the lookout for a sight of the gardens and grounds of Beeville. Soon my eyes were repaid by a birdseye view. It was a beautiful sight, and more than my imagination had painted it. The fall rains had freshened every thing up, and there had been no frost. The creek-bottom garden was a model of neatness, with its long rows of growing vegetables and small fruits.

I soon arrived at the factory, and made my way through rooms stored with many articles of interest to a bee-keeper, up to the office, passing through the pressroom. I was on the lookout for the face of my friend Ernest, and I confess I felt the strangeness of my position among so many busy workers. I failed to see the one I was looking for, but was told that he was somewhere about the building. I handed my card to one of the pleasantest-looking men it has been my good fortune to meet, asking him to hand it to Ernest when he saw him. He looked at the card, and extended his hand very cordially, introducing himself as John Calvert. I managed to return his greeting after some fashion, still feeling a bit embarrassed; but soon this feeling passed away, and I started out to wander at will through the great factory, taking in every thing my eyes rested on.

It was not long until I spied Ernest in one of the rooms; and then with him as guide I began a more systematic inspection of the factory. I can't take space to give you a detailed account of every thing; but during the day I made the acquaintance of a number of the workers, including "A. I.," who met me in the evening, and apologized for not having given me more attention. All the time I kept wondering who I was, any way, that I should have such marked kindness and respect shown me.

During this first day I got the run of things, and felt quite at home. It was arranged that, the next morning, I should take a bicycle-ride with Mr. Root, going part way with him toward Akron. That evening a social party of young married people at the home of John Calvert, to which I was invited, along with my kind host and family, added much to a day long to be remembered.

The next morning, at 9:30, Mr. Root and myself mounted our wheels and started toward Akron. This was our opportunity to visit and get better acquainted, as we went swiftly along over good roads and through a beautiful rolling country—a country of orchards, homes, and springs of clear water. We were boys together for 14 miles, and then I turned back, and Mr. Root pushed on to Akron, 6 miles further.

In the afternoon I spent some time in the apiary. I was anxious to inspect the Dovetailed hive and management, with the latest style of Hoffman frame. I was very much pleased with the hive as managed in the Root yard. I believe I could handle a third more bees in those hives, with the same labor that it takes to care for them in hives as ordinarily made. I decided that I would adopt their hive and frame as soon as possible, though I consider the eight-frame Langstroth, which I am now using, a good hive. My frames are self-spacing, and fixed by means of notched rabbets and spacing-sticks. It takes too much time to loosen and remove frames, as compared with the Dovetailed hive with its metal rabbets and self-spacing frames. Bee-keeping with such hives and fixtures as are turned out at Root's is not as laborious as it used to be. I am convinced that many are losing time and money by sticking to hives and fixtures of inferior make and workmanship.

In the evening, Ernest and I took our wheels and rode out three or four miles to visit the apiary of Mr. Vernon Burt. Mr. Burt's hives all came from Root's factory. His apiary, like Root's, is a model of neatness, and his bees all fine Italian stock. Mr. Burt informed us that he had taken a fair crop of honey, even in this indifferent season. After an inspection of the apiary, and a chat with the owner, we wheeled back through the gathering shades of night.

The next day was Sunday, and to me the best part of my visit. We all attended the morning church service in a large beautiful church; then a Sunday-school, which seemed to gather in everybody, old and young, who had attended preaching. There seemed to be no lack of workers. The officers and teachers were promptly in their places, and I was not asked to take the place of some absent teacher, as visitors are so often urged to do. At the close, Ernest, who is superintendent, kindly invited me to address the school. It was then I realized that I was from the west, and not accustomed to addressing such large audiences. But I did praise God for what my eyes were permitted to see of "peace on earth and good will to men" among those worshiping people. What a privilege to live where such splendid church work is going on! and how true that every community needs such a work, and could have it if they would work for it as these people have, for God is no respecter of persons. During that beautiful day there was time for quiet walks over the grounds, and rest of both soul and body.

In the evening I accompanied Mr. Root to the jail, where we held a gospel meeting with the prisoners; but, to the credit of Medina Co., I will say that our audience was small, but none the less attentive. The same evening we attended a church prayer-meeting and a temperance meeting, in which all the churches united. Thus closed a day full of blessing and peace.

During the three days of my visit I had become acquainted with every member of the family, including Grandma Root, the aged mother of A. I. Root, and all seemed desirous of making my visit pleasant. Especially should I mention the kind care received in the home of my friends Mr. and Mrs. E. R. Root.

The thing that impressed me very much respecting their business was the marked neatness and order that characterized every thing. There was no waste ground, no weeds, and no idlers; yet every busy worker had time to be considerate of the comfort of others. On Monday morning, at eight o'clock I mounted my wheel for a ride back to Sterling, leaving behind the beautiful Home of the Honey-bees, a spot on which memory shall ever love to dwell.

Browntown, Wis., Nov. 17.

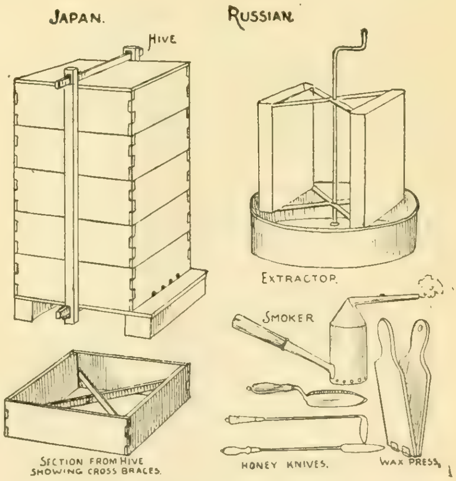
RUSSIAN AND JAPANESE EXHIBIT AT CHICAGO.

HOW THE ORIENTALS DO IT.

By C. A. Hatch.

While at Chicago last year, wandering around with no definite object, in the immense agricultural building, I came across two apicultural exhibits that I have never seen mentioned in the bee-papers; viz., the Russian and Japanese; and while my memory fails to call to mind the details of several interesting things of which a few brief notes were taken at the time, there remains enough, I think, to interest those of your readers who did not happen to discover these exhibits; for, there being nothing to designate them as apiarian displays, it would be a discovery if you found them at all.

Russia had no one in charge of her bee-exhibits. They were simply spread out on a table and had been there with no care, apparently, all summer. There was some honey in bottles, looking dark and uninviting, and a glass section of fair-looking honey in the comb. The section was about 5x6 inches, I should guess, and made of strips of glass about 2 inches wide, glued at the corners.



The implements consisted of hives, smoker, extractor, wax press and extractor, honey-knives, queen-cage, feeders, and all the usual kit of modern bee-keeping; but, how different! Just look at the smoker! Shades of father Quinby! how long would one of our Yankee bee-men tolerate such a "fixin'" around? Imagine a common gallon oil-can cut down to hold about 2 qts., and the top elongated and turned to one side about a foot; a handle put on the opposite side; some holes in the bottom for the draft, and you have it. I think if any one were to attack a cross colony with this kind of weapon he would cry aloud, and roar lustily for an assistant to bring a Bingham or Crane before he would take out many frames.

There were eight different honey-knives shown. One was evidently for uncapping, and much like a Bingham in shape, only smaller, and the others were for transferring from box hives. Presumably, the two shown in the cut were about 18 inches in length.

The wax-press is explained by the picture. The wax being in a cloth, and put between the boards, the two handles were brought together; and, being hinged at the lower end, of course gave pressure.

The extractor looked antiquated, and reminded one of the old Peabody style in use 30 years ago. The combs were put into a kind of long thin box having a double back—the inside one of coarse screen, placed a short space in front of the other; no gearing—simply a bent iron for a crank, and a large flat pan at the bottom to catch the honey as it runs down from the comb-basket. The only way to get this out, that we could discover, was to dip it out. Would it not be a fine dauby job to handle a crop of 30,000 lbs. in this way? If this was a fair exhibit of bee-keeping in Russia, we Americans could show them a few kinks in the business.

One frame hive was shown, something like the old American, having an empty chamber for sections over a brood-nest all in one box, and doors to open to the section department.

JAPAN'S EXHIBIT.

There were only a few things shown with the apicultural exhibit from that country. They consisted of some honey in glass jars, some bees in alcohol, and a hive. How I did want to taste that honey, and have some one tell me how the hive was worked! But the bright-eyed Jap in charge said he knew nothing about bees, so I had to content myself by using my eyes only. The hive, as you can see, is a divisible one, and certainly is one step in advance of a box or cylinder. It was about 15 in. square, and each section about 5 in. deep, clamped together by two uprights, one at each side, and a cross-bar at top and bottom, in long mortises, tightened by a wedge, which does not appear in the cut. Each section was braced diagonally from corner to corner, and the corners dovetailed or locked rather. The wood was something like cedar, and the board about ⅝ thick. The entrance was through round holes in the bottom section. Now, perhaps Ernest will say, "That is a point for me," for it goes to show that the Japanese bees work up. Well, let him have it if he wants it. The bees were little weazeny things, any way, and nowhere with Wisconsin bees, that work sidewise best.

Ithaca, Wis., Oct. 25.

TIERING UP.

PUTTING ONE SECTION-SUPER UNDER ANOTHER AN UNWISE PRACTICE.

By John Handel.

Bee-keepers usually advocate, and I suppose almost all practice, that laborious way of raising the nearly finished case of sections and slipping the empty case under. They seem to take it for granted that, because the bees usually require some coaxing to get them up into the first case, the same will be true with the second. This I began to doubt a few years ago; and while experimenting along this line I came to the conclusion that, whether the new case of sections is placed over or under the case that is three-fourths finished, the bees usually abandon the old case too soon, and commence work in the new. Bees act in this respect like other stock. After a number of pigs have been confined to a yard for a long time, the fence may gradually tumble down; but the pigs, even though they be crowded, seldom try to get out. But, once out, it will take a pretty good fence to hold them. So with the bees. After being confined to the brood-chamber for months they do not notice that the bars are left down, so that, even if considerably crowded for room, it will take time before they venture upstairs. But, once out of the rut, no other inducements than clean sections with starters in them are required to make them go higher. I have coaxed strong colonies into the sixth story by placing the empty case on top of the one three-fourths filled; and after the honey-flow, when I took the honey off, I found almost all of the sections light weight, with the comb seldom built down to the bottom of the section, showing conclusively that too many bees abandoned the old case to begin on the new, leaving a few to finish up as best they could.

Savanna, Ill.

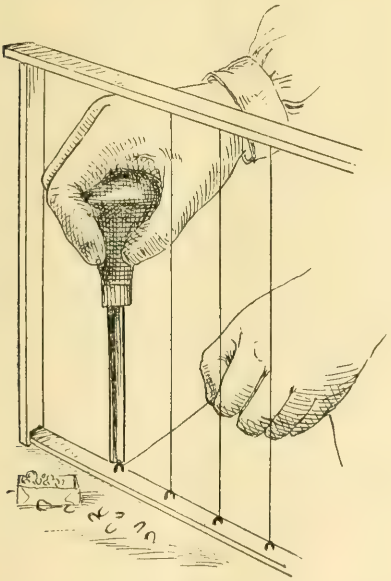
A CHAT ON EUROPEAN MATTERS.—NO. 2.

By Charles Norman.

Whether the French and Swiss bee-keepers use what we call the Heddon hive-stand, I do not know. The majority of them, at any rate, seem to prefer having their hives on legs.

A correspondent, in order to prove the preference for the low frame, writes: "At the beginning of the winter the group of bees dwells near the entrance, at the lower part of the frames. On deep frames the warm air ascends to the top, and the bees do not profit by it. On low frames the group is nearer the top of the hive, and in the warmed air; therefore, economy of both food and fatigue." At first reading, this sounds as if it could not be otherwise. But is it really so? In a square or high hive of the same cubic contents as a low hive, does not the warmed air make up in *depth* for what it loses in *width*? and will not, therefore, the bees have just as much warmed air at their disposal in them, and adapt themselves to it without loss of food and fatigue? The preferableness of the wide frame has, I presume, to be founded on other grounds.

There is mention made of "impropolisable" frames. Since their construction is not given, I am unable to say whether their principle or principles are known to us. There are different "systems," the best of which seems to be Mr. Palice's. It might be advisable to write to him for information. Likewise I see a smoker, *L'Imbouchable*, advertised, which is said to be superior to all others (that is, to those used there). There is also an "automatic" smoker advertised. What it is, I can not say—perhaps something entirely new.



There is a way of wiring frames in use which I have never noticed here. The wiring is done by means of a little implement with which double-pointed tacks are pressed down over the hand-stretched wire into both the top and bottom bars.

There are also foundation-presses in use which are quite plain, and seem to do away with some of the inconveniences of our Given press.

While the Italian bee is the dominating one in our country, a good many of the Swiss and French bee-keepers still stick to the common brown or black bee. Mr. Bertrand is by no means so much opposed to them as our leaders, and says: "The race of bees of our country is excellent, and one can, if he chooses, still improve it without crossing them with the foreign races at all. It suffices to make a little selection, to increase from the hives which give the best results; i. e., to 'favor' their swarming or to draw artificial swarms from them; further, to remove all queens that produce inferior workers, and to unite the bees with others." I remember that Mr. Doolittle once, in reply to an inquiry in GLEANINGS, remarked that, to try improving the common bee, would not be worth while, since the same is a fixed race; while Mr. A. I. Root, in a footnote, differed with him, saying that the thing had not been tried yet, and that, in his opinion, quite a change might be brought about by *selection*.

Concerning the foreign races of bees, the Carniolans seem to have just as many friends as the Italians; likewise the crosses between them and the other races are quite popular. There is even one apicultural genius who thinks that a cross between the common bee and both the Italians and Carniolans is the apex of perfection. By the way, several queen-breeders speak of Carniolan and Carinthian bees. As I do not remember having seen the latter mentioned in our American bee-literature, I first thought the two words might perhaps be synonyms, the Austrian provinces of Carniola and Carinthia adjoining each other; but when looking closer I noticed that, in one of these advertisements, a sharp distinction is made between them; that they had been brought from their respective countries, and that either is offered. Can you, Mr. Editor, or perhaps one of your helpers, tell us what the difference is? A Mr. Bellot, an old, experienced queen-breeder, likewise distinguishes between Syrian and Palestinian bees. Has such a distinction ever been made in this country? He also says: "You know that the oriental queens are much smaller than the Italian queens," as if this were an undoubted fact. Well, the Holy-Land queens are somewhat smaller, no doubt; but are *all* of the oriental queens smaller? The Syrian as well as the Algerian bees (the latter our Punics of camel's-back fame) he calls "great robbers, and very bad if one is not very cautious when opening their hives. They are of great vivacity when the temperature is high." Well, when I think of how Messrs. A. I. and E. R. Root were dealt with one day when they opened their Punic hive, I believe you did not need any Frenchman's testimony to said "vivacity." "In times of scarcity," he continues, "the Palestinian bees are the first to rob when a hive is opened," and gives as a reason for it that "their sense of smell is still more developed" than that of the other races. Regarding the rearing of queens, he says: "The secret is, to work with strong colonies composed of young bees; the hives must contain honey of very good quality, also fresh pollen." Do all American queen-breeders lay the same stress on using honey, and first-class honey at that? The same writer says: "A very important and not sufficiently observed point is, to have the hives at sufficient distances from each other in order to keep the bees from getting lost when they return. If this is less imperative during the honey-harvest. it is not the same in spring, especially if one has bees of different races. I have often had queens balled, fatigued, and even killed, at the first flight in spring; therefore, for some years I've been keeping my hives at sufficient distances, and thus the bees of contiguous hives do not mix; the queens are more tranquil, and can develop their brood without difficulty."

Another bee-keeper, who uses the Wells hive, closes with perforated zinc the entrance to the other colony, when one of the two colonies has a virgin queen, and her time to be fertilized has come, so that the young queen, when returning, can not go wrong. Well, if, like the majority, one has no double but just single colony hives, would it not, when a virgin is about to make her nuptial trip, be practical to use zinc at the entrances of the adjoining hives (on either side)?

Mr. Chatelain, of St. Marc, Belgium, says that, when a queen issues with a prime swarm, her abdomen hangs down; when a second swarm issues, the abdomen is held horizontally; when a virgin queen goes out on her wedding-trip, the abdomen is held up.

Concerning the question of heredity, a correspondent says: "I am happy to tell you, dear sir, that my long observations have given me results like those of your honorable correspondent, Mr. Chas. Dadant; viz., that the nurse-bees do *not* transfer their characteristics to the young bees or queens which are not of their own blood."

A correspondent who reports a short honey crop found out an old truth, but which can not be repeated often enough: "The weak colonies have done hardly any thing, while the strong ones have amassed a good deal." He had united or strengthened his colonies.

A Mr. Dampoux had 34 straw skeps, 14 of which were small, 20 larger. Fearing the trouble of transferring them in the usual way, he simply set them (after closing, I presume, their entrances and removing or otherwise fixing their bottoms) upon the frames of Dadant hives which he had furnished with foundation. The colonies of the 14 small hives went "downstairs" and took possession of their new quarters; but with the 20 larger ones the thing was a failure.

Another correspondent uses the following mode of transferring: Toward the end of February, or at the beginning of March, "before the bees could fly out much," he places an empty "patent hive" where he wants it to remain. He then sets the box hive inside of the patent hive, on the bottom of the same. The supposition is, of course, that the box hive is the smaller one; were it too large, it might do to set it on the frames of the patent hive, as in the preceding case, or on top of it. The entrance of the box hive should come as near the entrance of the patent hive as possible. The box hive is set on two pieces of scantling, or the like, so that, if necessary, feeding can be done underneath. The top of the whole is well covered. About the first of May an artificial swarm—as large as possible in order to contain the queen—is taken from the box hive by drumming, and then dumped or driven into the patent hive, which had previously been filled with frames of comb or foundation. The patent hive is covered with a honey-board, on which the box hive is placed, the entrance of which is then closed. Twenty-one days afterward, the honey-board is replaced by a Porter bee-escape, and twenty-four hours thereafter the box hive is taken away and its honey extracted.

I mention these two instances because, in your A B C. you advise placing the patent hive *on top* of the box hive, while the two Swiss or Frenchmen set it *underneath*.

The honey-harvest in 1893 was not satisfactory, on an average, and "reports discouraging" are by far in the majority. A Belgian reports that his whole crop consisted of—honey-dew. It being very thick, the combs had to be softened over boiling water; thus, in a room overheated by fire, and filled with water vapors, our poor "brother," "friend," "colleague," labored for seven long hours to extract—thirty kilograms, and, besides this, he was, though used to manual work, rewarded with having his hands sore and swollen all over.

St. Petersburgh, Fla.

To be continued.

MOLASSES-MAKING, AND HOW BEES ARE KILLED.

A MORTAL COMBAT BETWEEN A WASP AND A SPIDER.

By Novice.

Molasses-making has been going on in this vicinity for two weeks, and my bees have suffered in consequence. They fly about the boiling syrup, and as soon as they get over the kettles the heated steam causes them to drop. My colonies have lost fifty per cent of their strength in this way.

The plague of yellow-jackets has been unusually bad this fall. My idea has always been, that a bee is insensible to fear. This is a mistake. They certainly do fear the nimble yellow-jacket, and in many cases I have seen the bees give way before him, and allow him full license to plunder. This is not always the case, however, as they will generally have a battle royal with the intruder, and by force of numbers kill him at last.

Speaking of contests of this sort reminds me of a most interesting scene, witnessed some years ago, that would have delighted the very soul of the entomologist. It was a warm day in summer; and when sitting on the gallery I heard something drop in the sandy yard, that attracted attention. A large wasp of a rare species had found in the branches of an oak, an immense spider, with a body as large as the end of your middle finger, and with legs of a spread of three inches. They fell to the ground, locked in a deadly embrace. The fall seemed to disconcert the wasp, and it relinquished its hold and flew away. The spider rested a few moments, looking all around for its adversary, and then began to crawl away. Presently the wasp returned to the spot where he had left the spider, and, missing him, alighted on the ground, and with quick nervous movements began to track up the spider, just as a dog would trail a deer. The spider had reached the shelter of some thin grass, and was waiting the advance of its enemy. As soon as it saw the wasp it threw itself into an attitude of defense, resting on its posterior limbs, and lifting the two pair of front legs high into the air. The wasp darted at him, and the two rolled on the ground in a furious struggle, the wasp trying to use its sting and the spider its deadly bite. The contest lasted for a full minute, the two rolling over and over in the dust until the wasp, apparently getting the worst of it, tore loose from the spider and flew away. The look of sullen ferocity worn by the spider as its winged foe retreated was something to be remembered. It appeared as though the wasp, although not actually bitten, was intimidated, and had abandoned the field. In a few minutes, however, the wasp returned, apparently with the determination to have that spider or die. It tracked it up again, and the same furious combat was repeated. The insects writhed, and rolled over and over, their motions being so rapid that the eye could not follow. At last the deadly sting was delivered, and the spider instantly paralyzed. Then followed a singular scene. The wasp, after resting a few minutes, lifted the spider and bore it away. Flight with such a burden was impossible. Although the weight of the spider must have been double its own, the wasp carried it out of the fringe of grass, and, selecting an open route, carried it into the path which led to the yard gate. Being interested to know what the wasp was going to do with its prize I followed and watched it pass under the gate, and out until it reached the foot of a large red oak standing at least twenty yards from the scene of the battle. Reaching the tree, without hesitation it began to mount it with its load, and climbed, without rest or pause, until it disappeared within the recesses of a large hollow in the oak, and I saw it no more.

I suppose Prof. Cook would tell us that the sting of the wasp, while it did not kill the spider, put it into a comatose state, unable to move a limb, but still having life, until the egg of the wasp, inserted under its skin, developed into a grub which lived and grew, feeding on the body of the still living and helpless victim until it reached its maturity. I wonder if the fable of Prometheus bound to the rock, with the vulture feeding on his vitals, may not have been suggested by such a scene as this.

EIGHT OR TEN FRAME HIVES.

HOW AND WHY THE LATTER IS BETTER IN A POOR SEASON AND IN LOCALITIES OF IRREGULAR HONEY-FLOWS.

By J. J. Cosby.

I see that the size of hives is being discussed yet to a certain extent. My conclusion is, that this is an extreme point, and can be proven only under extreme circumstances. I have always believed that the size of hive to the average queen is of vital importance. Now, what size shall we adopt to accommodate the average queen, in an extreme case? I am using the ten-frame Dovetailed hive; and during last winter and the summer of 1893 the journals had so much to say in favor of eight-frame hives that I almost regretted I did not adopt them. The ten-frame hives cost more, are heavier to handle, have more pieces to handle, and occupy more space when being transported. Then if an eight-frame hive is just as good, or better, under all circumstances, why not adopt it as my standard, if I can get the same number of pounds of honey from it that I can from a larger hive?

After reasoning as above I determined to try a part of my colonies on eight frames for 1894. About the first of May, when all had been equalized as to brood, bees, and stores, I put dummies at the sides of ten hives—or, in other words, contracted them to eight-frame hives. I work on the Doolittle contracted expansion plan in the early spring, and at my last round I see that all have about the same amount of stores.

All the surroundings at this time seemed to be favorable for a good crop of honey, except the weather. March was noted for unusually cold blizzards; April for its unusually cold rains, and with all this the bees increased in numbers rapidly. May came; but in her hurry to dress she neglected to adorn herself with any fruit-bloom or any other flowers except a little dandelion. Then came June a smiling, and in many places hid God's green earth with her white carpet of extravagance (white clover), but neglected to put in the needful nectar.

Then our cup of anticipation was full of disappointment, and also the bees were disappointed, for many colonies were killing their drones before June.

The 15th of June came, and no honey; and up to this date my eight-frame hives, from all appearances, both outside and inside, were just as good as the ten-frame. By July the first outside appearances showed no change; but examination showed that the queens on the eight frames had curtailed laying to a certain extent, while in the ten-frame hives the queens were keeping their combs full of eggs and brood. July 18th many of the queens on the eight frames had almost ceased laying. Combs were empty, supplies exhausted; several of them did not contain half a teacupful of honey to the colony. It is no wonder the queens quit laying —stores used up right in the midst of a long drouth, and nothing coming in except a little pollen to keep them from actual starvation.

About this time I fancy I hear some veteran whisper in thundering tones, "Why don't you feed them?" To that one I reply, I'm testing eight or ten frame hives. August 1st came, and it began to look as though I should have to feed all. Yet the ten-frame colonies had an abundance of eggs, brood in all stages, and a host of workers and some considerable old honey in the outside frames. These two outside frames constituted the capital that kept the queens laying all through July. About Aug. 10 they began to get some honey, and by Sept. 1 the honey-flow was good, and lasted up to about the 8th or 10th of October, when frost killed the flowers.

My ten-frame colonies went into the supers, and did good work at the commencement of the flow, and continued there as long as it lasted. The eight-frame colonies did not have a sufficient number of workers to go to the supers at the start, and four of them never got there at all, but got in good shape for winter—plenty of bees and abundant stores. The other six gave me a surplus of 90 lbs. of section honey. I worked 24 colonies on ten frames; had one swarm only. It came out June 1. I hived it on five full sheets of foundation, and fed a little through June and July, and got from it 128 lbs. of section honey. My entire crop is a little over 2300 lbs.; a little over 300 lbs. extracted, and the rest section honey.

Now, had the honey-flow come at the usual season of the year, which is June, then the eight-frame colonies were in good shape to take care of it, and no doubt I should have adopted this hive for my standard. This test has proved conclusively to me that it is too small to go through an exceedingly dry year or a long siege of forage, and then be in shape to take care of a sudden honey-flow. It may do in localities and off-years where the honey-flow is regular at certain periods of the year; but where it varies, give me the ten-frame hive. If the ten frames are well filled, this supply will last until late in the summer; then if compelled to feed for the coming winter, do so in time to raise a good supply of bees to go into winter quarters.

This year has been one of extremes, and I am glad I made the test at this time. The test was made with queens of equal ability (so far as I could judge), and in the same yard. If I had adopted the eight-frame hive two or three years ago, or had I put dummies in my hives at the time I contracted the ten colonies, my crop would have been almost a failure. It would have been just the kind of crop that hundreds of our bee-keeping friends are reporting. I truly believe that many who have reported a failure or short crop could have had at least a fair average crop, and many would have had a good crop if they had used a larger hive and had not robbed the brood-chamber during the previous year. Nearly every one reports his hives full for winter. Yes, and so are mine—even the four that failed to give me a single pound of surplus. It may be nice to theorize at times; but, under extreme circumstances, practice may prove that dollars and cents get to be a premium.

Evansville, Ind., Nov. 26.

EIGHT-FRAME HIVE NOT EQUAL TO THE LARGE QUINBY.

TWO STORY EIGHT-FRAMERS DON'T FILL THE BILL.

By W. A. Chrysler.

I have read with great interest the discussion of eight vs. ten frames; and from my own practical experience I think the ten-frame idea will gain the day. I, however, think as Ernest does—that twelve frames would be the most desirable size for the brood-nest; but that makes the top of the hive too large. I have, for the last five or six years, been trying to think the eight-frame hive the best. I have for years been trying to make that two-story system of management work for storing frames of brood and getting a great big colony for the honey-flow; but I find my large single-story hives (about nine-frame Quinby capacity) ahead. They seem to store enough honey in fruit-bloom to tide them over to clover when the eight or sixteen frame hive has to be fed, or is in a shape to absorb probably a fair crop *among all the brood*, when we can not well or advisably extract it. I find the queen does not lay as well when an extra story is added for brood. The heat goes upstairs, and so does the queen. I can not keep her laying in both stories unless in very warm weather, and then I want her to let up some. I think the eight-frame hive is better with eight frames than one with eight frames added above, L. size. I think the Heddon hive would be more successful. The Langstroth eight-frame has become so much of a standard hive that I am very sorry to change to any thing else; but I have decided to "flop," and not only from the eight to the ten frame Langstroth, but right over to the ten-frame Quinby, with the frames shortened to that of the Langstroth.

As this discussion in GLEANINGS will encourage new styles of hives of so many different sizes, I think the manufacturers should all, if possible, invent a new hive in keeping with the times and demands that are being made by bee-keepers. My customers are now ordering larger hives than last year, many of them new styles.

Chatham, Ont., Nov. 21.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N. Y.

BUILDING A HONEY-HOUSE.

Question.—I am thinking of building me a honey-house; and as I wish to get ready this winter I wish you would tell me just how you would build such a house for the storing of comb honey.

Answer.—My experience tells me that I should want such a honey-house only in connection with a shop or general workroom, for a honey-house away from the general workroom causes very many needless steps and worry not caused by the two being combined. Any building can be cheaply lined so as to exclude bees, with half-inch stuff, for the general workroom, and the storage room be built on the south side so as to make it convenient, airy, strong, and sufficiently warm to ripen honey thoroughly. If I were building a shop I would build it so that I could partition off this storage-room on the southwest corner, having the body of the shop for doing work of all kinds pertaining to the apiary. I would build it two stories high, and use the upper story for storing every thing not in use, or liable to be used for some little time. If I did not wish to build a shop, I would use any old building I had, lining and fixing it as in the case first given for a room for this general work, for such a room can not well be dispensed with. It would be *preferable* to have this general room mouse and rat proof; but if an old building is used it could hardly be expected, without quite an outlay. The room used for storing honey I would have mouse-proof, let it cost what it would; for the filth from vermin about honey is not to be tolerated at all. If mice get into the general room, keep them caught out with traps; and as for the rats, they will not be liable to bother unless you have grain of some kind in your room for them to feed upon, and this, of course, you will not tolerate, for this general room is for bee-fixtures and not for grain.

Having given a little outline of what I would have for the general workroom, I will next tell about a room for storing honey. This need not be larger than 8x10 for storing all the comb honey from 100 colonies in the spring, even should they produce 200 lbs. per colony on an average. Whether built in with the shop, or at the outside of another building, I would have a wall of mason-work for the sills to rest upon, if drainage could be obtained so the water would not stand under the wall, as in such case the freezing of the water about the wall would soon destroy it. If I could not dispose of the water I would use abutments. The wall or abutments need not be more than a foot high; and if a wall, two or four six-inch-square holes should be left at the sides so that air can circulate freely under the floor. If a wall is used, 6x8 would be plenty large for the sills, and 8x10 in any case; for you will see that the abutments, if such are used, are close together, not more than three or four feet apart. For sleepers I would use 2x8 inch, and place them about eight inches apart from center to center, having them run the shortest way of the room. Now, do not think this is too strong, and place these sleepers further apart; for if you do you will repent should you ever get from five to ten tons of honey in your room.

I would have the room nine feet high in the clear. If built separate from the shop I would have a tin roof, and paint it a dark color; but if in a shop, of course no roof will be needed save that over the whole building, as the upper floor will make the roof. So far I would use good hemlock for the wood employed, for this holds a nail well, is strong, and does not easily decay. For the floor, I would use 1¼ matched spruce four inches wide, and inch pine common ceiling for the sides. If all is put together as it should be, you will not be bothered with mice, provided you keep the door to this room shut when not in use. This door is to be on the side next your general room, of course. I would have a window on one side and on one end, which are to be opened in warm dry weather, so as to ventilate thoroughly the room and pile of honey. Over these windows on the outside is to be placed wire cloth so the windows can be left open at pleasure, without any fears of robber-bees. To let the bees out, which may chance to come in on the honey or in any other way, let this wire cloth run 8 or 10 inches above the top of the window, nailing on strips of lath, or other strips ⅜ thick, so as to keep the wire cloth out that far from the sides of the building, thus giving space for the bees to crawl up on the cloth to the top when they are on the outside. No robber-bee will ever think of trying to get in at this entrance, so your room is kept clear of bees, flies, and other insects all the while.

This completes the building, I believe, except that we want it painted some dark color so that the rays of the sun may keep it as warm as possible. The door should be in the center of one side, so that on each side of the room a platform can be built upon which to place the honey. Perhaps all will not agree with me; but I think that all comb honey should be stored in such a room at least a month before crating, to ripen and sweat out. I know it is a saving of labor and time to crate it as fast as taken off the hive, but I think it pays for all the extra time and labor, in the better quality and appearance of our product. The platform should not be less than six inches higher than the floor, and so fixed that air can circulate under it freely. Then whatever style of super you may use, arrangement is to be made so that each super is separated from its neighbor an inch or so at bottom, top, and all around, so that the air can circulate all through and all about the honey, thus curing and ripening it thoroughly. Also, fixed in this way the fumes of burning sulphur can penetrate the whole pile should it be necessary to sulphur it on account of the larvæ of the wax-moth being liable to injure it.

Before closing I must tell you how to fix a closet for all combs in frames, not in use. As you are building, place the studding on one side just as far apart as the top-bar of your frame is long. Now nail strips of ⅝ stuff, 2½ feet long by 5 inches wide to these studding, letting them stand out into the room in a horizontal position. Let the distance between each strip from top to top be two inches greater than the depth of your frame, so as to give sufficient room to manipulate the frames handily. Three inches from the ends of these strips run a partition clear across the room, which is to have close-fitting narrow doors placed in it, spaced so as to be most convenient. Now hang in your combs whenever you have any not occupied by the bees from any reason, and see that all combs not in use are in their place, and not lying about somewhere else. As often as any signs of worms are found, put in a pot of burning sulphur, close the doors, and the work is done.

Heads of Grain, from Different Fields.

THE GRAIN OF FOUNDATION.

I want to offer a suggestion in regard to foundation-making. On page 557, 1890, you advise hanging the foundation in the sections crosswise of the sheet as it leaves the mill. I do not know how it would test in the hive, but I have been trying the same test you did—welding together pieces of equal dimensions, to test the strength both ways at one pull, and I find that the greater strength is the long way of the sheet. A bar of iron is by far the stronger the long way, because of the rolling process lengthening the grain. Why may there not be some of the same in wax? If you think worth while, won't you look into the matter?

Loveland, Colo. R. C. Aikin.

[There is something in what you say. I had not thought of it in that way before.—Ed.]

HONEY AS FOOD AND MEDICINE; A GOOD TESTIMONIAL FROM AN OUTSIDE SOURCE.

In a journal published by a certain health club I find the following splendid testimony in favor of honey as food:

"Honey is concentrated nerve food in its very sweetest form; and if people would use honey on their bread, instead of butter, they would have more vitality, better complexions, and a more even disposition. The ancient patriarchs regarded honey as the cream of food; and so it is if eaten lightly. Honey-eaters are the kindest, best-dispositioned, and most benevolent of people."

On another page of the same journal I find the following reference to glucose:

"Glucose, a perverted form of corn, is prevalent in beer and in other drinks, and especially in soft caramels and creams, and in syrups, jellies, and similar things. Although derived from nutritious food, it is in a perverted shape; and to glucose may be attributed the rapid spread of Bright's disease."

It is my firm conviction, that, if people knew the truth as to the real nature of glucose, they would purchase less cheap syrup and more pure honey. It should be the constant aim of bee-keepers to educate the people on this point; and when we seek to advance our product we are only advocating something that will add to the comfort and health of those who use it, and we can do so with a clear conscience.

Harry Lathrop.

Browntown, Wis., Nov. 7.

ALSIKE CLOVER, ETC.

About two years ago I wrote an article for Gleanings on the subject of alsike clover, printed in the February issue, I think. Our neighbor, Mr. McColl, mentioned in the article, has just finished cleaning the seed raised upon twenty acres of specially prepared land. Though the land was not in what Mr. McColl considers *perfect* condition, the result was an average of *seven* bushels of perfectly clean plump seed to the acre, besides a considerable amount of good seed in the screenings. Mr. M. is very particular as to the quality of his clover seed. This crop was all *profit*, for the by-products have paid the cost of production. My object in sending you this item is to emphasize the point upon which you have always laid so much stress; namely, that nothing pays better than thorough, intelligent preparation of the ground in growing any kind of crop; also, that when a crop can be grown in a single season, that will bring in the market a sum equal to the value of the land on which it was grown, our farmer friends have not so much to grumble about after all.

If your readers care to know what Mr. McColl considers perfect condition of soil for alsike, and his method of attaining it, I shall be pleased to furnish a concise statement for GLEANINGS. EMILY J. WEST.

Flint, Mich., Nov. 2.

[By all means give us the particulars, friend Emily.—ED.]

LATE-MATED QUEENS.

I was much interested in G. B. Replogle's letter to Dr. Miller (page 9) concerning late-mated queens. My experience along this line convinces me that there is something in the theory. The last four years I have requeened my apiary very late in the fall, so as to get my queens mated to select drones. I found these queens very prolific. Several that are now three years old show no signs of failing. These colonies have been the first ones in condition to build cells early in the spring. As they built such nice cells, I have kept them longer than I do most queens, unless it is fine breeding-stock. While these colonies got very strong, they were not any more inclined to swarm than those having fewer bees in them.

I have forty colonies in winter quarters now, with late-mated queens. Bees were reared in but three colonies before cold weather set in, so I shall have a good number to test the coming season. Before, the queens were used to fill orders; so, but a few were kept through the season. Since my attention was called to this matter, I don't remember of having a poor queen among any of my late-mated ones. Twenty colonies have been the smallest number in my yard the last four years. Nearly all bee-keepers could requeen their apiary late, even if there were black bees all around them, and get nearly all queens purely mated. If bee-keepers desire, I will give my method of getting late drones—something that would interest queen-breeders also. E. F. QUIGLEY.

Unionville, Mo.

[This letter was mislaid. It has just turned up; and as it is good, I am glad to give it place at this late date.—ED.]

HOW TO KEEP ANTS, WHERE THEY ARE A NUISANCE, OUT OF THE HIVE.

I have succeeded in insulating a hive from ants, without inconveniencing the bees. I will give the plan. Make a stand somewhat like the Heddon stand, with outside dimensions the same as those of the bottom-board, and the top edges even. We would say, dovetail them at the corners, and only three inches deep. Into each top corner insert a wood screw for the bottom-board to rest on. The screws may be placed in the stand so as to make them come under the cleats, or a little back from them, just as you like best. Now adjust the screws so as to make a crack ¼ of an inch between the cleats and the ends of the stand. Now place the hive on the stand, and watch the bees (after they learn the trick) walk over the crack and enter the hive. Watch the ants, also, how they caper about and are not able to play the trick. Do not allow grass or any thing to form a connection between the ground and the hive. You will readily notice the stand may be made on different plans, and the space over which the bees are required to step may be varied to suit your needs.

Lilesville, N. C. W. E. T. INGRAM.

BEE-SMOKER TO GET RID OF GOPHERS, ETC.

In many of the Western States the small ground-squirrels — Franklin's spermophile — locally known as the gray gopher, a gray ground-squirrel, etc., and the striped spermophile, local name striped gopher, striped ground-squirrel, etc., are very numerous, and do much damage in the newly planted cornfields, the first named in particular often depleting the fields to such an extent as to cause the replanting of the same. They increase very fast; and in sections where, a few years ago, they were scarce, their name is now legion. They are strictly a prairie-squirrel, and are never found in the timber, though they quickly take possession of the timber lands after they are cleared. Shooting and trapping are slow and unsatisfactory methods of destroying them; and while poison is more sure, many people object to its use on account of danger to domestic animals. My way is, to take a good smoker, charge it with the fuel in common use, mixed with rags dipped in melted sulphur (I suppose sulphur sprinkled on the fuel would answer the same purpose), light, insert the nozzle in the mouth of the burrow, and a few blasts will fill the hole with sulphuric-acid gas, which is certain death to the animal. Sulphuric-acid gas is heavier than air, and will settle to the bottom of the hole.

This plan will work on any burrowing animal, providing the holes are all closed to prevent the escape of the animal. In using the smoker in small holes, the taper nozzle will usually fill the hole; but for skunk, groundhog, fox, or other larger animals, it will be advisable to close the mouth of the burrow by laying a board over it with a hole in the center, to admit the nozzle of the smoker. This is fun for the boys, but death to the varmints.

Monroe, Ia. J. A. NASH.

PUMICE STONE FOR PROPOLIS.

Did you ever try pumice stone as a cleaner for propolis-stained hands? Nothing else is required except a little water—the handiest thing I ever tried. H. DUPRET.

Montreal, Can., Oct. 14.

By E.R. Root
Editorial

DON'T fail to read the article by E. France in this number. It's long, but it is good in proportion to its length.

WE clip the following little gem from the *Bicyling World:* A. I. R.

Advertise honestly. It takes five minutes to disappoint a customer; five years to reassure him.

THE following note was just received from Mr. F. A. Salisbury:

Ernest:—I see by the last issue of GLEANINGS you made me say that I secured a big crop of honey while some of my neighbors secured little or none. If I said that, it was a slip of the tongue. I do not think any more honey can be got by keeping bees in a house-apiary than outdoors. It can be harvested with considerably less labor.

Syracuse, N. Y. F. A. SALISBURY.

I should more think it was a slip of the ear than of the tongue, therefore I father the mistake myself.

COMPLAINT has been made that we have offered special inducements to *new* subscribers, but none to those who stood by us year by year. As there was a shade of truth in this, last year we offered the *Farm Journal* and GLEANINGS to old subscribers for the regular price of GLEANINGS alone, providing they would renew before January before the time paid for was out. This offer is again made, but expires by Jan. 1. Don't forget that, if your time is not up yet, you can still get the *Farm Journal* free by sending in the dollar in advance for another year. As it will be during this month that a large number of subscriptions expire, we hope our friends will take advantage of the situation *at once.* Suitable blanks will be sent to all whose time is up. Notice also, in another column, the low clubbing offer for A B C; viz., GLEANINGS and the A B C in paper postpaid for $1.55.

QUEEN-BREEDERS AND BEE-PARALYSIS.

IN our issue for Nov. 15, page 872, I asked for a show of hands of all queen-breeders who sell queens, who would agree to destroy the first case of bee-paralysis within twenty-four hours after its discovery. Some have responded, but not all. In many, and in most cases, it is true, we are able to cure paralysis, and, perhaps, the queen-breeder thinks it would be too bad to destroy a good colony, and possibly a valuable queen, so long as there is a probability of cure. But knowing, as we do, that the disease can be carried by queens all over the country, and while impotent in one place works fearful havoc in another, it seems to me that every queen-breeder should be willing to take radical measures, not for his own sake but for others'. Such a course would surely stamp it out entirely in a few years. The reason why the disease has been getting a foothold was because we did not recognize its danger The following have so far held up their hand:

W. H. Laws, Lavaca, Ark.
J. P. Moore, Morgan, Ky.
J. J. Hardy, Lavonia, Ga.
F. A. Lockhart, Lake George, N. Y.
F. B. Yockey, North Washington, Pa.
H. G. Quirin, Bellevue, Ohio.

As bearing on the eight-frame hive discussion, the following editorial in the *Progressive Bee-keeper* will give a little comfort to the ten-framers, and we are glad to place it before our readers for what it is worth:

Which is the more profitable hive to use—eight or ten-frame? Mrs. J. M. Null, when at St. Joseph, said she had some ten-frame hives in her apiary, and she always found they had plenty of honey to winter them. Our own experience has been the same. When we changed from American to Langstroth frames, we made ten-frame hives. Later, we sold the ten-frame hives to our neighbors, and adopted eight-frame hives. These hives of our neighbors had had no attention but putting on surplus cases. They turned off more bees to a swarm, and when fall came we were called on to take off the honey. We always find a good lot of honey in these hives whenever there is any honey gathered by other bees around them. Our observation of the above was for four years in succession, and we have to admit that our own colonies in eight-frame hives, with good management, did not give us as large an amount of surplus honey.

LARGE AND SMALL HIVES, AGAIN.

IT is a little confusing to read over the diametrically opposing experiences of some of those who have written on this question. But, one thing *seems* to be coming out; and that is, that bee-keepers have been, for the most part, trying to get along with too small brood-nests. And it is possible that this may partly account for the poor honey crops of late. While some think a ten-frame hive is the thing, and large enough, from the evidence that has been received, and from my own experience, I am coming more and more to believe that, while ten-frames may give slightly better results, a twelve or sixteen frame brood-nest would give still better results. I may be wrong; but in my own mind I have decided that, inasmuch as the eight-frame size body full of combs is not too large to lift, two stories of this hive will give a brood-nest ample for all purposes and for all seasons. Then in poor seasons, and with poor queens or with poor localities, one of the eight-frame bodies may be quite large enough. Hence I have and still favor the eight-frame size for hive bodies. A couple of valuable articles will be found in this number on the subject.

In this connection I may remark that Observer, in *Progressive Bee-keeper*, wants to know whether I am paving the way for a new hive for poor benighted bee-keepers since I am begining to favor larger colonies. No such idea ever entered my head at all. Besides, it would be terribly expensive, not only to bee-keepers, but to us as supply-dealers, to change our patterns, our engravings, and, in fact, our whole catalog and machinery, all of which is especially adapted to the hives and fixtures such as we have recommended and still recommend. I have tried to be honest with our readers, and tried to get at the *facts*, no matter whether they favored my views or not, or our convenience as manufacturers; and I mean to carry out this course, even if it necessitates turning our whole establishment upside down. Incidentally it may be remarked that the supply-dealers should not only keep up with the times, but be a little in advance of them, and at the same time observe that conservative spirit that will prevent rushing into new and useless things.

THE DIFFERENT MAKES OF FOUNDATION AS TESTED AT THE MICHIGAN APICULTURAL EXPERIMENT STATION.

IN the *Bee-keepers' Review* for November, Mr. R. L. Taylor gives a further detailed account of his experiments with different makes of foundation. Mr. Taylor concerns himself this time in the study of the "comparative value of different samples of foundation," and the "thinness to which bees work the septum in drawing it into comb." He refers to "the very earnest and commendable efforts" made at the Root establishment, in the direction of improving *machinery* for making foundation.

The experiment it question was conducted to verify or disprove a similar experiment of last year; viz., what grades of foundation give the thinnest septa, or bases, in the drawn-out comb; or, in other words, show the least perceptible amount of "fishbone" in eating the comb honey made from the foundation. As before, samples were obtained from the various manufacturers, and these were put into hives, drawn out, and filled with honey. A section of comb made from each of the samples to be tested was selected, extracted, and thoroughly washed and dried, after which it was trimmed to a given thickness—about half an inch. These pieces were submitted to the weighing test at the laboratory of Dr. Kedzie, of the Agricultural College. They were then measured by Dr. Beal, of the same institution, to determine the thinness of the septa. Other samples were sent to our establishment to be measured by our micrometer—the one we use in our own work. The samples were all lettered, so it would be impossible for bias or self-interest to creep in. The results are all carefully tabulated—both the weights and measurements—and it is remarkable how nearly the two harmonize. Our own measurements and those of Dr. Beal were averaged so as to get greater accuracy. Well, now, the figures show that the Dadant foundation, when drawn out into comb, had the thinnest septa; namely, $\frac{54}{10000}$. Next in order was a sample of the Root. While the Dadant registers the smallest fraction, so far as the *thinness of the base* is concerned, our own, on the scales, showed the *least weight*. Next in order came the Dadant and the Given.

Mr. Taylor then furnishes another table showing the measurements of the various makes of foundation for 1893 with those for this year; and the comparison shows a decided improvement with one exception, all of which is very encouraging.

In concluding, I can not do better than to quote the summary in Mr. Taylor's own language, which is as follows:

> 1. In all cases except the Van Deusen there seems to have been an improvement in the foundation over that used in 1893; and in the case of the Van Deusen it is to be noted that the bees accepted only the septum, which was shown by their removing the cell-walls, and building, instead, more or less regular drone-cells.
>
> 2. Most remarkable is the improvement in the foundation made by Root and by the Dadants in so far as the lightness of the septa is concerned. By a comparison with the measurements of the septa of the unworked foundation as shown in the table it will be seen that the foundation has been so skillfully made that the bees have either pared down the septa or else manipulated the entire wax of the septa, using for them only what was necessary, so that the resulting comb does not suffer at all, so far as thinness is concerned, in comparison with the natural comb.
>
> 3. The same thinning process is very apparent in the drawing-out of the Hunt foundation.
>
> 4. In the case of the Van Deusen, and generally in a greater or less degree in the case of that made on the Given press, the process has been changed to a thickening one.
>
> 5. In point of thinness of base of the comb produced, the foundations stand in the following order: The Dadant first; then in their order the Root, the Given, the Hunt, and the Van Deusen.
>
> 6. The comparison by weighing places them in substantially the same order. Where there is variance it is reasonably accounted for by the difference in the size of the cells. Thus the Van Deusen, had it carried the amount of cell-walls that would have been necessary for worker comb, would evidently have been of considerably greater weight
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> It would, of course, be of great interest to know the methods and the peculiarities of the wax used in making the foundation which seems to disclose such a decided advance over what has been made heretofore. It is to be hoped that the improvement has been made wittingly, so that a knowledge of it may be perpetuated if not disseminated. In order to determine what the utmost existing skill and knowledge could produce, the several manufacturers were acquainted with the use to which the foundation was to be put when it was ordered; and the question arises, whether all the foundation made was of equal quality. To determine this it is apparent that future experiments should be made with foundation so procured that it can not have been made with the express purpose of having it used for experimentation.

NOTES OF TRAVEL

BY A. I. ROOT.

All along the route, as I neared Lebanon I heard of the wonderful spring on the river Niangua. In fact, the river itself, so I am told, is the product of one or more soft-water springs. I was told, also, that dry weather has no effect on it; and one is obliged to ford the river to get to Lebanon, not only once but three times. I suggested that I could take my wheel and go around the spring and get rid of fording the rivers; but they told me it came out of the side of a cliff, and that there was no other way but to go down through the deep water. They said I would probably have to hire somebody to take a wagon to carry me over, for the water came almost if not quite up to the wagon-body. I knew I should not have time for such delays but I pushed ahead. I made pretty good progress until I came into the neighborhood of the river; then I had it up and down, up and down. But it was not hills where one could go down on one side and up another, as we do away back home in Ohio. The hills were not only long and steep, but rocks were so thick, from the size of a hen's egg up to a good-sized pumpkin, that at first glance it seemed little short of madness to go down such hills on a wheel; but, like the sand I told you about long ago, I soon learned that a wheelman can learn to dodge and climb over rocks. In fact, before I got to the springs I learned to go down these hills at almost a breakneck speed. It was not so much the rubber tires that had to be managed—it was the cranks and pedals. If a pedal strikes a rock, or stump of a tree that has not been cut off quite short enough, it gives a shock ten times worse than striking the rubber tire against an obstruction. In going down one of the last hills I met a couple of pedestrians. They said they *waded* the river. I decided that, if they did, I could do it, even though they were considerably taller than myself. At the bottom of a longer and steeper incline than any I had met before, the beautiful Niangua River burst on my view. All that I have said in regard to the crystal purity of the waters at Castalia, O., will apply to this broad river. The gravelly bed, however, was composed of sharp flinty pebbles; and as soon as my bare foot touched them I decided that going barefoot was out of the question; therefore my light kid wheeling-shoes had to take their water-bath. I was perspiring in every pore. In fact, the sweat was dripping from the end of my nose. It was a difficult matter to roll up my pants and heavy underclothing; and when I had tugged and pulled to get them a notch higher I was only a little way out in the stream. The water was deliciously cool to my palate, and I drank again and again while it was rushing past me above my knees. At first it gave a chill to my lower extremities; but pretty soon I began to enjoy it, and really longed to plunge into the crystal flood all over. I think I should have done so if time had permitted. I took a glance at the sun. It was sinking relentlessly, and I had nearly 20 miles more to make before dark, besides getting through that river three times. I went back hastily, divested myself of my pants and thick heavy underwear. The latter article was put on when I started, thinking we should have frosty nights. I finally got them off, and then made another attempt at wading. Before I got through I had to hold up not only my coat-tails, but the lower ends of another garment that would have been white had it not been for the fact that it was Saturday night, and that I had been wheel-riding for almost a solid week. I put my clothing on the bank, then waded back for my wheel, scooping up the delicious cooling liquid every now and then on the way. The current was so swift that I made rather slow progress. Just as I reached the opposite bank I was dismayed by seeing a young lady on horseback rounding the cliff on the opposite side. As a rule, I am always glad to meet young ladies on horseback, but I didn't enjoy meeting this particular *one;* for my pantaloons, etc., were on the *other side of the river*, and there was not time enough for me to get down into the deep water without a very undignified splash and scramble—undignified, at least, for a man of my age. I began to feel that I *was* in a pickle for once, without any mistake; but just then the woman turned her horse's head and rode by on the other side. I suppose you might have heard my long breath of relief quite a distance.

I put my wheel across my shoulders, my head going through just under the seat, and once more waded the river. Catch cold? Not a bit of it. I knew I should not catch cold so long as I kept up the perspiration; but I felt that I could not go on without a brief glimpse of that wonderful spring. When I essayed to put on my sweaty woolen drawers, however, I was startled to find that they would not go on any way. I hadn't a minute of time to spare to fuss with them, so I wrapped them up with my overcoat and undercoat, and tied the whole between the handle-bars. Then I crossed the stream and found my way to Bennett's Mill. The great spring was about a quarter of a mile out of my way. I waded the river again, and followed it up to the cliff, and there, sure enough, was the great limpid pool. The water is so clear that you look down into a frightful chasm, and away back under the cliff, and then down into what looks like a bottomless pit. Nobody has ever yet been able to find any bottom. Now wait a minute until you understand. The water comes up with such force that even a chunk of lead is thrown out by it, and will not sink; and the same way with all attempts at forcing a pole or rod down into the crater of this watery volcano. A queer sense of chilliness began to admonish me that my safety depended on getting up perspiration again. A succession of hills, such as I had first passed on the other side of the river, soon warmed me up; but my strength was giving out. The dinner I took hastily at Plad was not a very inviting one nor a very nourishing one. The heavy load of clothing between my handle-bars seemed to take a good deal of strength. A wagonload of boys came up behind me, who had been fishing for speckled trout in the waters of this spring. Without stopping to think, I gave one of them a dime to take my bundle and leave it at the postoffice. This left me toward sundown, in my shirtsleeves, my thick woolen drawers suddenly dispensed with, also from 15 to 20 miles from my destination. Never mind. Relieved of that heavy burden of useless clothing, my wheel started up like a young colt, and I just bounded over hill and dale, rejoicing in freedom for my muscles as well as being relieved from useless weight. After an hour of pretty brisk riding, however, up and down the hills, I felt my strength going again. There was no time for any more naps, nor even for any more refreshments; but I decided to stop at the first house and give almost any price for a glass of milk. The road was pretty fair, but it was still on the ridges, and houses were very scarce. I finally found one near the road; but nobody was at home. A boy in the garden said they hadn't any sweet milk, but he guessed he could get me a glass of buttermilk.

"All right, my friend," said I, "give me the buttermilk," as I threw a coin on the table. Now, although I am so much addicted to drinking milk by the pitcherful, I never took very kindly to buttermilk, and this was *sour* too. It was a pretty critical time, however, and I could not afford to be fastidious. The buttermilk gave me strength, but not very much. Then the road forked, and one part was traveled about as much as the other. There was no house in sight. I went a little way on one branch, but felt so sure it was wrong I turned and took the other. This other road dwindled down until it became a mere cowpath, without any sign of a wheel-track. Oh how I did long to see somebody who could answer a brief question! By the way, how many times through Missouri I would have given dollars for a signboard! I am told that the boys have a fashion of smashing them up as fast as the authorities can put them up. Accordingly, the boards they do put up are so cheap and inefficient that one can not read the lettering after a good hard rain.

I thought of Mrs. Root, ten miles away, watching down the road for glimpses of myself and wheel. Just before me was another steep hill, up which the cowpath ran, with rocks and stubs where the brush had been chopped off all the way. But at the top I thought I saw a tow-headed child running about at play. I toiled laboriously to the top, but there was no child to be seen. There was not even a glimpse of any house of any kind—not even a fence. I was alone in the wilderness. Once more that little prayer came almost of itself—"Lord, help!" and then I pushed on. It seemed from the looks of things that this deserted road must soon disappear entirely; but after that little prayer my heart lightened in some way, and I did not feel so much alone nor so much lost as I did before. A little further, and what do you think? My path came out into a beautiful, well-traveled, smooth road, and a company of movers told me I was only three miles from Lebanon. I was thirsty, hungry, and tired. I made up my mind that the first thing in the shape of a hotel or restaurant would have to be patronized, even though the minutes were getting precious. Oh, yes! here it is. A bright, clean-looking sign-board hung out right over the sidewalk—"Farmers' Home."

"My friend, how soon can I have some supper?"

"This very minute, sir. In fact, we are just sitting down to supper."

I explained to him that I wished to ride out in the country about five miles before dark, and I wished he would have my supper on the table by the time I got washed. Let me explain that Lebanon, Laclede Co., Mo., has quite a fame for its magnetic and electric wells. I will tell you more about them later. As I commenced to wash I asked the clerk if that was the celebrated magnetic waters. He said it was. It seemed about like the water from the spring I had just left, and probably it is the same, although they have drilled 1200 feet to reach the vein. But, didn't I have a nice supper! Pulling out a handful of change I said, "How much?"

As he said, "Twenty cents," I gave a whistle and threw down a quarter.

"Why, my dear sir, you probably did not notice what an enormous supper I have eaten."

However, he handed me back a nickel, saying, "I am very glad, sir, if your supper pleased you; but our regular price is 20 cts., and I prefer not to take any more. This is a farmers' hotel, and the farmers about here have been having a pretty tough time. They get only about 35 cts. a bushel for their corn and wheat, and so you see these provisions do not cost us very much. So we try to make prices so low that, when they come to town, they will not feel guilty if they invest in a good warm meal, instead of bringing along a cold lunch."

Now, who is it that says there are not any good people left in the world?

Well, I was ready for business once more; but just as I got in the outskirts of the town, and began to feel it would be dangerous to ride in the darkness over those peculiar roads, a fiery meteor blazed above my head, lighting the landscape far and near. It was not a *real* meteor, after all, but only the electric lights of Lebanon. Although the town has only about 2000 inhabitants, the place is beautifully lighted by arc-lights suspended above the center of the streets. After making half a mile by the aid of the electric lights I began to feel chilly, and remembered that my woolen stockings were in my hip-pocket instead of on my feet. While sitting on the bank, putting them on, a man passed along. I explained to him that I was not a tramp, and got some better directions how to reach my wife's brother's place. I rode about a mile further, then left my trusty wheel at a house by the roadside. I went on foot about a mile, and, finding my strength giving way, I began to long again for a little relief. Hark! Is that a buggy coming? Sure enough, it was. I stopped the driver and begged for a ride. In a few minutes I was not a stranger, for the driver's aunt used to keep bees and take GLEANINGS, and he volunteered to carry me right to my brother-in-law's door. But I was getting chilly again. Remember, I was in my shirtsleeves, without my underclothing, and riding in an open buggy. There was nothing to do but to get out and walk again, in order to keep up the temperature. I was pretty well rested, however, and it was only a mile to my destination.

By the time I was pretty well used up again, the light of the house in question delighted my eyes A sort of lane turned up toward the barn. I concluded this would be a shorter cut than going through the front gate. But I looked in vain for some kind of gate or bars to let me through the close barbed-wire fence. After I had got on past the house, on my way to the barn, I saw a figure at one of the windows, that looked like Mrs. Root. I believe my heart began to beat about as fast as in years gone by before she became Mrs. Root. Now, she has many times scolded me because I would try to climb through wire fences. But I concluded to disobey just once under the circumstances. There was some sort of board fence back of the barbed wire, and with much care and pains I got to the top, and found the board fence so ricketty that it would hardly hold my weight. I picked my way among the sharp barbs, however, and got down on the other side. only to find a similar fence right before me. I felt like the man who said he had fallen over three cradles in trying to get into his home after dark, and there was another right before him. But I finally got over the last fence, and then I could not find any door to the house. Somebody had a light in the back kitchen, and I came up to the screen door. A nice young lady had the lamp. I was not perfectly sure that it was any of my relations, but I took the chances.

"Now, look here. How does a body get into this house, *any way*, with all these wire fences, rose-bushes, and ever so much other stuff in the way?"

"O *Uncle Amos!* is this indeed yourself at last?"

At this exclamation the whole family piled into the back kitchen, and I was finally supplied with all I needed, given the best seat and plenty of flannels, and, like the prodigal of olden time, I was invited to sit down to a well-spread table, and partake of roast turkey which my stalwart young nephew "Thad" had "shooted" the very day before, in honor of my approaching visit.

OURSELVES AND OUR NEIGHBORS

BY A. I. ROOT.

In a recent sermon by our good pastor, J. R. Nichols, I was so much impressed by one or two points that I asked him to write up that portion for the readers of GLEANINGS. You will find it below:

ARMED WITH THE MIND OF CHRIST.

Forasmuch then as Christ suffered in the flesh, arm ye yourselves also with the same mind; for he that hath suffered in the flesh hath ceased from sin; that ye no longer should live the rest of your time in the flesh to the lusts of men, but to the will of God.—I. PETER 4:1-2 (New Version).

"The sufferings of Christ" is the theme of this epistle, which moves on a high plane of moral grandeur and heroism. As we learn in the introduction, it was addressed to the elect, scattered through the provinces of Asia, who had not only been driven out by persecution, but were now suffering persecution on account of their belief. The author's aim is to encourage and sustain them in their trials, and this he does most successfully. He first salutes them as heirs of an inheritance "incorruptible, undefiled, and that fadeth not away," in which they are able to "rejoice with joy unspeakable and full of glory," even though now for a time they may "suffer heaviness." He recalls to their mind the fact that their redemption has not been purchased with "corruptible things, such as silver and gold," but "with the precious blood of Christ, as a lamb without blemish and without spot," and then, advancing to speak of their suffering and hardships, he reminds them that they ought not to be unwilling to suffer for the name of Christ, since he suffered in the flesh for them; and this is the ground of his argument and appeal, to which he returns again and again in the progress of his epistle. In these verses the apostle is approaching the conclusion of his argument, and he draws a practical application or lesson: "Forasmuch as Christ suffered in the flesh, arm ye yourselves also with the same mind."

I want to impress upon you, at this time, the importance of being armed with the mind of Christ in regard to sufferings and afflictions as a means of purging us from sin, and preparing us to do the will of God.

"The suffering of Christ," which is the theme of this epistle, is also the groundwork of the whole gospel. Leave this out of the thinking of the last nineteen centuries and you utterly revolutionize the Christian thought of the world. We have in the suffering Savior "a man of sorrows and acquainted with grief." Peter has before spoken of the sufferings of Christ, and the glory which shall follow. Paul also speaks of his desire to "know the power of his resurrection and the fellowship of his sufferings." There is sin in the world, and it requires suffering to get it out. This is God's chosen way, although many fail to approve it. Time was when this plan did not meet even Peter's approval. When Christ first announced to his disciples that he must go up to Jerusalem and suffer many things of the scribes and Pharisees, Peter took him apart and rebuked him, saying, "Be it far from thee, Lord;" but Peter has now been converted, and has been led to see the wisdom of the divine way.

Some say sin can be educated out of the world; but the experience of Greece, as well as of modern times, has conclusively shown that a trained mind is often found in the same body with an evil heart. Some of the brightest men of the ages have been fiends incarnate. Sin will endure a marvelous degree of intellectual culture. Some are in favor of doing away with sin by means of resolutions—pass resolutions against it; but experience has proven that it will stand any number of resolutions. It thrives on resolutions. Some say, "Love it to death." This is well; but how are we to show our love for men? Does a mother show her love for her child by caring for it and fondling it when in health, and turning away from it in the hour of sickness and suffering? There is no way one may so effectually show his love for another as by suffering for that other. So Christ showed his love for us by suffering for us in the flesh. This theme underlies every correct conception of the blessed truth of the Christian religion. It was in this way that Christ declared his sympathy with us and his undying love for us; while at the same time revealing his intense hatred of sin. We ought never to lose sight of this fact nor its tremendous significance—that Christ suffered in the flesh.

But the apostle next calls our attention to a practical inference or lesson from this theme; viz., that, since Christ hath suffered for us in the flesh, we should arm ourselves also with the same mind. Peter addressed these Christians as if they were engaged in a warfare, and he uses a military figure —"Arm ye yourselves"—taking the mind and purpose of Christ in relation to his suffering as a weapon of both offensive and defensive warfare. Take his loving spirit into your heart to protect you in the midst of your conflicts for Christ and your faith. Be willing to suffer for him; he has for you; "endure hardness as a good soldier of Jesus Christ." Christianity appeals to the heroic in human nature. It calls upon us to be strong and courageous in the midst of trials, suffering, and persecutions. We ought not to look upon suffering in the flesh "as though some strange thing had happened to us." This heroic spirit is quite too rare among the professed followers of Christ in the present day. Too many desire a religion of convenience, which does not call upon them for any disagreeable service or unwelcome sacrifice. They do not want to forego any pleasure, or be thought peculiar, or even leave their warm firesides, for Christ's sake. Some seem to think that Christ has borne all the unpleasant things, and they have only to reap the reward of his sacrifices and sufferings. The command, "Be ye not conformed to this world, but be ye transformed by the renewing of your minds," seems to have been dropped out of the Bibles of many people. The fact that other people do things is to many a sufficient warrant for doing them. Because others dance, and play cards, they must do the same. The fact that others violate the Lord's day by taking long trips on their bicycles is a sufficient warrant for them to do the same. The words of this text, "Arm ye yourselves with the mind of Christ," should be proclaimed with emphasis from the Atlantic to the Pacific, and from the Lakes to the Gulf. This is a test of our personal loyalty and attachment to Christ. The loyalty of many disciples is put to shame by the attachment of soldiers to their earthly commander. At Austerlitz, we are told, the soldiers of Napoleon extracted from him a promise that he would not expose himself to the bullets of the enemy before they would go into battle. Are we willing to suffer hardness for Christ that his name may be honored among men?

And now follows a remarkable (and in some ways a surprising) statement: "For he that hath suffered in the flesh hath ceased from sin." Manifestly this statement can not refer to Christ, so far as active participation in sin is concerned, for he "knew no sin;" but it can refer to him so far as the annoyance and reproach of sin are concerned, and also in relation to the atonement for sin, and by analogy to us so far as the power of sin is concerned. This phrase may be paraphrased as follows: "The suffering one has ceased (or is ceasing) from sin," referring to the effect of suffering in the flesh, in purging our mortal bodies from the craving for and the love of sin. Christ by his death saves us from the penalty of sin; suffering with Christ, and sacrificing for him, delivers us from the reign and power of sin. Herein is the reason why we are enjoined to arm ourselves with the mind of Christ, that, through suffering and sacrifice, we may purge away the desire for sin, and break its power over our lives. This shows the benefit of suffering, sorrow, and the discipline of loss in the moral government of God. They were not instituted in an arbitrary manner to gratify a caprice or feed a spirit of revenge on God's part, but they are permitted as a part of our discipline for the "inheritance incorruptible, undefiled, and that fadeth not away." We find by experience that enduring hardness for Christ is better for us than reclining on flowery beds of ease, or luxuriating in pleasure. A life that is full of self-indulgence never helps one to cease from sin, but leads one farther and farther away in the path of sin and disobedience; but pain, suffering, loss, disappointment, and trial, borne in a meek and quiet spirit, do help us to gain the victory over sin and the flesh. In my experience as pastor, which, though not extended, I think is representative, I have known many people to be brought to Christ through loss of friends, loss of property, and through adversity, meekly borne, but never a one through indulgence or self-gratification, or worldly pleasure or prosperity. Those who have learned to love Christ and serve him are rendered grateful by success and prosperity; but these things in themselves do not bring men to acknowledge God and hate their sins. A recent visit to the factory where hollow-ware is manufactured gave me an illustration of this truth. The pots, kettles, and gridirons come from the molds rough, uneven, and unfit for use. Before they are fit for service they must be put on the wheel and tried as by fire. The wheel is rough and hard; and as the rough edges are smoothed down, and the rough places made smooth, the fire flies but the work is done; so if we would be meet for the Master's use we must be put on the wheel, and tried as by fire. It is the cross that destroys sin and saves men—not the soft strains of music nor the gliding of dancers, nor the shuffling of cards nor the sound of revelry and mirth. But here I need utter a word of caution; some are ready to say, "If suffering and loss are good as a means of purging away sin, and fitting one for the service of God, then let us seek them as an end." Not so. Remember, we are enjoined to arm ourselves with the mind of Christ. Christ never adopted the method of the ascetic or the anchorite, and inflicted pain and suffering upon himself. He did not wear a coat of camel's hair, nor stand on one foot, nor cut himself with the lancet, nor hold his hands for hours above his head as a means of pleasing God. These are the methods of the religious fanatic. Christ went straight ahead in the performance of his duties and in doing the will of God; he met the suffering and loss and sorrow that came to him. He never went out of his way to seek them, nor should we suffer them as an end to be sought in itself; but they are to be endured in the way of the performance of duty, when God permits them to come upon us. The brighter experiences of life have also their mission. Let us not despise them; but they can not do for us all that needs to be done.

But the second verse in our text calls our attention to the reason of this purifying discipline; viz., that we should no longer live the rest of our time in the flesh to the lusts of men, but to the will of God. In reading these words I like to remember that Peter wrote them. I imagine he was thinking of the wayward, impulsive years which preceded his full consecration to Christ. No one was better fitted than Peter to give utterance to these sentiments. He knew, all too well, how he had been brought to do the will of God. The first great victory over sin is to be won right here in this world. The process is severe; viz., suffering in the flesh; but the result is glorious; viz., crucifying the lusts and enthroning Christ in the heart.

In time past you have been content to live to the natural desires of the heart; but henceforth ye are to live to the will of God, if ye would be his disciples. The difference between living to the lusts of men and to the will of God is as wide as eternity. We are not to understand the word "lust" as referring necessarily to things that are immoral, but to the uncontrolled desires of the natural heart. The Christian is not to live to the gratification of his own desires, but to do the will of his Father which is in heaven. My brother, if you are to be a child of God you must break with sin—with every known sin, at any cost, even at the cost of suffering in the flesh. I desire to make this point very clear and emphatic in my ministry, God helping me. I see those every day who are making a failure of their Christian life, and others who have no joy in their Christian living, because they are living their time here in the flesh to the lusts of men and not to the will of God. The only successful Christian life is that which is not devoted to pleasing ourselves, but to doing the will of Him who hath redeemed us with his own blood. Any other is such in name only. If this distinction between living to the lusts of men and to the will of God be not a real distinction, then there is no Christian life, and our faith is vain, and our hope is vain; but it is a real distinction, and the end set forth is, through Christ, possible to every man. May you all attain to and be heirs of that "inheritance incorruptible, undefiled, and that fadeth not away."

There are two things in the above that took a strong hold of me. The first is as our pastor has paraphrased it: "The suffering one has ceased (or is ceasing) from sin." I have been learning this grand truth for years; but I do not know that I have ever before realized it as I do now. Years ago I read a little story somewhere about the American Indians. A certain tribe was in great peril. In fact, the chief of the tribe was in deadly peril, and yet his people were indulging in drunken orgies with whisky furnished by white men. Very likely these same white men were the enemy that threatened the extinction of the tribe. A missionary, however, was in the vicinity. The odds seemed tremendously against him; but he decided, however, to make a desperate effort to save the Indians. Perhaps some of them had made a feeble start in Christianity. The man of whom he had expected the most was among the drunked crowd, and himself intoxicated. The missionary managed to make him understand the condition of affairs. They were near a little lake at the time, it would seem; and this drunken Indian, when he dimly realized the situation, without a word plunged into the lake. After a severe self-inflicted ducking, he came out and tried to talk. His cold-water bath was hardly sufficient, under the circumstances, and into the lake he went again, and ducked himself so thoroughly that the missionary was frightened, and tried to have him stop. I can not remember exactly his reply, but it was something like this: "Me stop? stop and keep on with these drunken fools? stop when the *honor* of our *tribe* is at stake, and our *chief* in danger? No, no!" And down he went into the cool waters again and again, until he was a sober man. I think the tribe was saved through this one brave man. Well, I have not had exactly the experience of this poor Indian, but I have a good many times got into a way of straying away from the path of duty. It has been more often in *thought* rather than in deed, and sometimes it really seems as if nothing would awaken me to a sense of my danger, or to a sense of the responsibilities that rest upon me, except some real trouble. Perhaps I have been indulging in something I knew was dangerous. I struggled feebly against the temptation until some real trouble startled me. May be some dear friend of mine, a professing Christian, is getting astray in the same direction as myself; but having had fewer experiences, or having less strength of character, he is going a great deal further than I have been. At such times it has seemed almost as if I could hear the prophet Nathan uttering those scathing words that he spoke to David: "*Thou* art the man." At other times I could almost hear a voice within me saying, "There, old fellow, that is *your* own doing. You may not have realized it, but it is the direct consequence and *result* of the example you have been setting before others." I can not tell you how thoroughly I have repented at such times. Remembering the story of the poor Indian I have said to myself, "Here, you poor miserable unworthy fellow, this thing has been going on almost before your very eyes, and you are too much taken up with self and selfishness to even notice it. Like the poor Indian, you were wasting your time in getting drunk[*] when you ought to have been not only setting a right *example*, but praying and pleading with the weaker ones around you." Again and again has suffering or danger or trial of some kind roused me up and made me ashamed of myself. Again and again have I said to myself in my closet, "O God, forgive me for my sin and folly. Forgive, and receive me once more to thyself, and help me to remember this bitter lesson. Forgive me for *forgetting* my responsibility; and help me to rescue these friends, and bring them back to Christ Jesus." Why, I have sometimes thought that, if I did not have disappointments, troubles, aches, and pains, I should not be good for any thing at all. Sometimes a *toothache* has made me ashamed of some selfish weakness that was filling my thoughts up an hour or two before. Now for the second point:

Our pastor is a man of wide experience. He is a highly educated and well-read man, and yet what startling words are these! "I have known many people to be brought to Christ through loss of friends, loss of property, and through adversity, meekly borne, but never a one through indulgence or self-gratification, or worldly pleasure or prosperity." I wish to call attention to the concluding words. He has never known a single person brought to Christ through worldly pleasure or prosperity. Dear friends, can this indeed be true? I know something about how many of us are praying for things that are really little more than worldly prosperity. But can it indeed be true that, when God grants our prayers—when he gives even *more* than we prayed for—that these very gifts and blessings *never* lead us to him? I am glad, however, of the words that follow, that our pastor has seen those who serve him rendered *grateful* by success and prosperity. Well, if these things be true (and, dear friends, I think we must all admit that there is more or less truth right here), should we not then try harder to receive trials and suffering with meekness and humility? You remember the old hymn:

Nearer, my God, to thee,
  Nearer to thee,
E'en though it be a *cross*
  That raiseth me.

HIGH PRESSURE GARDENING

THE GAULT RASPBERRY.

From the number of inquiries, it would seem that there are many who wish to know more about this new raspberry. I confess I have been a little cautious about recommending it, because so many things of which we expected much prove to have grievous faults—the Timbrell strawberry, for instance. The Gault raspberry has thrived for me one season. It has shown itself to be a most robust, rank, and thrifty grower, and does not seem to be troubled with anthrachnose, blight, or any thing of the sort. After my return from Missouri I found great whopping berries under the foliage, down in the dirt. The weight of the berries brought them down. Besides its everbearing and persistent-bearing habit, it has has a queer fashion of sending out now and then a great broad shoot having more the shape of a leather strap than that of a raspberry-cane, and some of these monstrous growths look more like the *tug* of a harness than a leather strap. Well, the funniest part of it all is, that this great big green abnormal shoot will put forth a bunch of berries more like a heavy stem of grapes than any thing else. On next page is a picture of one of them.

Mammoth clusters like the above not only appear here and there in friend Gault's plantation, but there have been quite a number of them on my own grounds. We do not find them on every bush, mind you, but, say, one in every four or five hills—that is, one having more or less of this extravagant growth, perhaps only one in a hundred showing such a mass of fruit as is shown in the cut below.

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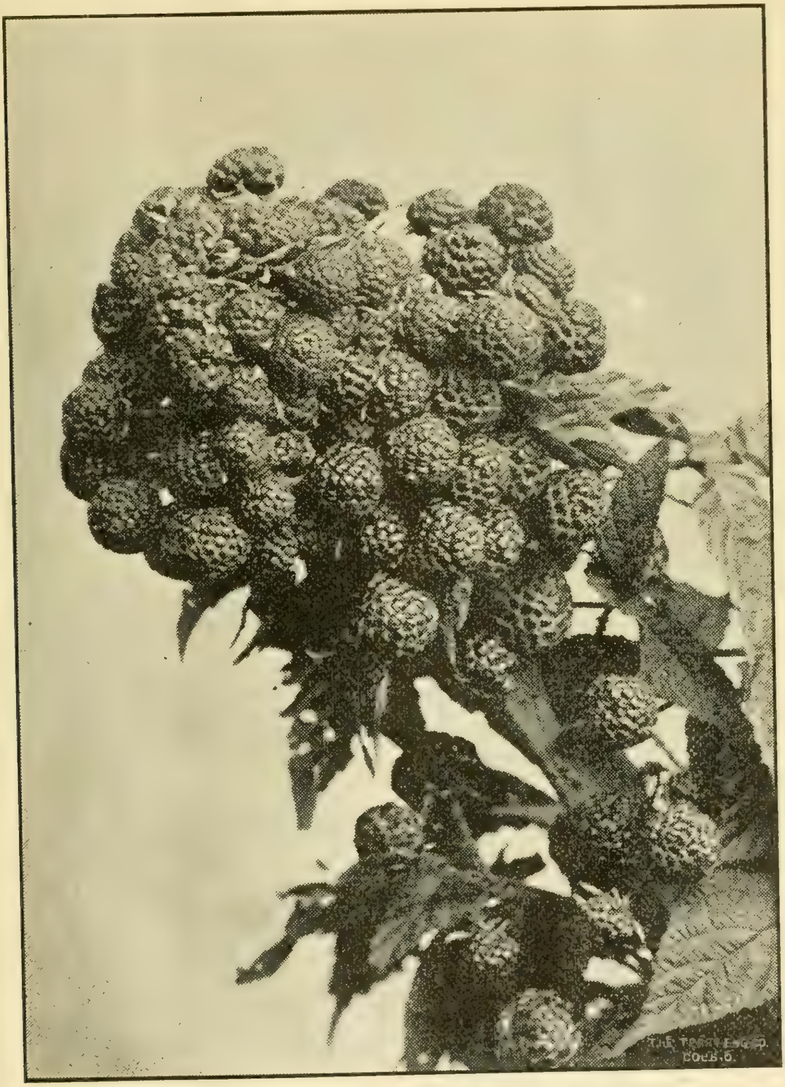
[*] I know that some of the friends will remonstrate against the extravagant language I am using right here in regard to myself; but please consider that, in the *sight of God*, my offense might have been as great as was getting drunk for the poor Indian. "Unto whomsoever much is given, of him shall be much required."

In regard to our offer, we are not at liberty to sell a single plant for less than 50 cts., nor a dozen for less than $5.00. But any one who pays for GLEANINGS for 1895 can have one Gault raspberry for 25 cts. And now we will make a still better offer. Any one who will send us a *new subscription* can have a plant for his trouble; that is, you, *a subscriber*, show our journal to your friends, and get somebody who does not already take it to subscribe, you sending us a dollar, then you will get a raspberry-plant without sending us any more money except the dollar. Of course, when you do this the name is not to be counted on any other premium, and you must get us a *new subscriber*—at least, one who has not taken GLEANINGS for several years. I may add, that the berries, so far as my experience goes, are the largest and most delicious of any blackcap raspberries I have ever found anywhere. If picked before they are dead ripe they are as firm to market as any blackcap raspberry. When they are so ripe, however, that they are ready to drop off—and this is, in fact, the way I like them for my own eating—they would be rather soft to ship.



A CLUSTER OF GAULT RASPBERRIES, FROM A PHOTOGRAPH.

A POTATO STORY.

On the 24th of April, 1894, the following letter was placed on my table:

Mr. Root:—Knowing that you are interested in any thing new (when it is better than any thing else) I mail you a sample of a new potato I have. I wish you would plant them and see how they yield, and then try them as to quality. I think they are the best potato for quality that I ever saw. I enjoy reading Home talks and Gardening in GLEANINGS, and should like to run up on my wheel and see you this summer if I could get time. GEO. E. CRAIG.

Zimmer, O., Apr. 20.

Soon after, the mail brought us two very large fine handsome potatoes. I looked at them, and they were then put away with other potatoes sent to be tested. I did not have very much enthusiasm in the matter, I confess, for I have been testing potatoes a good many years, and it is a great deal of trouble, with the many cares I have on my hands, to keep the letters of description, and the stakes so they can be identified at digging-time; and, besides, all my potato experiments have never amounted to very much—that is, in the way of testing new varieties. I think it must have been some time about the first of May that I got ready to plant our potatoes to be tested. A little corner down in the creek bottom, too small to be plowed, was spaded up. As it is within 20 feet of a creek which in summer time is four or five feet lower down than the garden, the piece has excellent drainage. As no manure was handy when we spaded it up, none was put on the ground—no fertilizer of any sort. I think there there were six or eight different varieties of potatoes to be tested. They all came up and started off nicely; but when the dry weather set in I felt a little sorry for them, not having any manure like the rest of the ground; and so, after giving them a good hoeing, some coarse manure was spread between the rows as a sort of mulch. None of the potatoes attracted any particular attention, except an extra early potato. The man who sent it said they would be ready to dig about the 4th of July, and that would be about eight or nine weeks after planting; and, sure enough, we had pretty fair potatoes about that time. The vines soon died down after this. The rest all went down one after another. It did not seem to be blight, really, but, rather, that they ripened and dried up rather prematurely on account of the drouth. There was one exception, however. The little bit of ground is triangular, so that each one of the six rows is a little longer than the one next to it. The last row, in fact, consisted of ten hills. These ten hills were made by cutting one of the large potatoes sent by friend Craig, so as to make ten eyes; but the other one of the two potatoes disappeared, and we have never found where it went. These ten hills came up very promptly, grew with remarkable thrift, and never stopped growing till the frost killed them about the 5th of November. At that time each hill was an enormous mass of foliage. Some of the vines were almost as big as a broom-handle where they came out of the ground. You see, they were planted on the one-eye-to-the-hill system. There was considerable talk about these ten hills of potatoes with their rich dark-green foliage all summer long entirely free from bugs, blight, or the effects of the severe drouth. They were dug while I was in Missouri, and made just about an even bushel of the largest and handsomest potatoes I ever saw. In fact, they were so handsome that some of them "got away" until the man who had them in charge nailed them up.

Now, this is a test of only a single season, with just one potato. It would be rather hasty to decide from this single test what the potato is really worth. I wrote to friend Craig to know what he could tell us about them. Two of the large potatoes were cooked, to compare with the Freemans. If they are not fully as good, they are pretty near it. The potato is more nearly like the Rural New-Yorker in appearance and habit than any other potato I know of. From this one test, it seems to me considerably ahead of any thing else in the line of potatoes I have ever had any experience with. The following is the letter:

Mr. Root:—The potatoes that I sent you for trial are a new variety that we raised from seed from the balls that grow on the potato-tops (but then, you know how to raise new varieties), and we think it is the best potato we ever had any thing to do with. That is the reason I sent those to you for trial. It has been eight or ten years that we have been raising them, never having sold any at any time to any one. I sent two to Wm. Henry Maule the same day I sent those to you, but have not yet heard from him as to how they have done with him.

I have over 200 bushels; but as to what I will take for them, I would sooner have you see them, and see what you will give per bushel for as many as you want.

I don't remember ever having the potatoes blight; but bugs will eat them, although I was not troubled with them this year or last either. They always outyield all others with us. Last year I planted two bushels of Northern Spies, which yielded almost the same; but this year the same variety was not worth digging. My grandfather has raised them three or four years (under promise to let nobody else have any of them), and he likes them better than any others. Last spring I let Mr. J. J. Zimmer, here at Zimmer, plant some of them for me, I to have every potato he raised. He planted about twelve other varieties, and mine was the best of all. Some of the others were not worth digging. I had thought of advertising them and selling a part of them, and of planting a lot of them, say fifty or one hundred bushels, so as to have a large stock next year. I do not think $5.00 per bushel any too much this year. Carman's No. 1 is $10.00 per bushel, but I do not believe in charging that much by the bushel.

GEORGE E. CRAIG.

Zimmer, O., Nov. 19.

Now, friends, I have given you the full facts in the case. Friend Craig is at liberty, I presume, to charge what price he chooses for his 200 bushels. I think that, before anybody invests very heavily in them, we had better have them tested on different kinds of soil. I wish that some of the experiment stations could have tested them at the same time I did. As for myself, I rather think I shall plant the most of my creek-bottom ground to the Craig potato, even if I do have to pay $5.00 a bushel for seed. The potato has no name that I know of; but I suggest calling it after the originator.

KEEPING SEED POTATOES FOR LATE PLANTING; A SUGGESTION FROM OUR OHIO EXPERIMENT STATION.

Friend Root:—In GLEANINGS for Nov. 15 you speak of the nice Freeman potatoes that you have grown by planting them late; but your main difficulty seems to be in keeping the seed in good condition for planting as late as you want it. Now, I have tried a plan of keeping the seed for late planting, for two years, that has given first-class results. It is simple and easy; and, even if it has been published before, it will do no harm to repeat it.

Take your potatoes from the cellar or pit as soon as there is no danger of freezing, and before they have become sprouted, and place them in a thin layer in some cool, light, airy place, and let them stay there until you want to plant them; and when you come to look at them there will be short stubby sprouts on them that are not easily broken off, and will come up quickly when planted.

Last spring, at planting-time, I took what seed I wanted, and put it seed end up in our flats that we use for transplanting plants, and put it overhead in the barn; and when I was ready to plant, June 28, it was in good condition for planting, and could, undoubtedly, have been kept for several weeks longer. It came up quite well, and gave the best yield and the most potatoes that we grew anywhere on the farm, notwithstanding the dry season.

Small potatoes answer nicely for this purpose, as they usually make but one sprout.

I think the plan of planting potatoes late a good one, and one of the best ways to escape the blight, that usually hurts potatoes unless they are very early. Quite often there is a good piece of rich ground that could be made to yield good returns when otherwise it would have to lie idle.
E. C. GREEN.

Wooster, O., Nov. 23.

STRAWBERRIES—REPORT OF OUR OHIO AGRICULTURAL STATION FOR 1894.

Bulletin 54 is just at hand. It is quite a pamphlet of 52 pages—in fact, the best station report on strawberries I have ever come across. It is really a valuable strawberry-book, and at the same time it is a report of the work of our two friends W. J. and E. C. Green — men who have not only brains, but money furnished by the State at their command. The State also pays them for their intelligence and brains, and they are entirely disinterested parties. Their report is given without fear or favor. Notes on varieties comprise something like ten pages, and they include almost every thing that has been offered for sale. In their summary, at the close of the report, they mention the following list of the most promising of the *new* varieties: Aroma, Belt's No. 3, Brandywine, Brunette, Cyclone, Granville, Huntsman, Ivanhoe, Leader, Leviathan, Marshall, Princess, Portage, Princeton Chief, Riehl's No. 6, West Lawn, Woolverton.

The next list they class as *doubtful* among the new varieties:

Auburn, Beverly, Banquet, Epping, Early Bird, Governor Hoard, Jay Gould, Lanah, Maple City, Robinson, Southard, Smeltzer's Early, Swindle, Shuckless, Timbrell, Tucker, Williams.

You will notice that our "dear friend the *Timbrell*," that has been so much boomed, comes in this latter class. The only fault with it, however, is that it is white in spots, like the old Sharpless, even when it is ripe. Next we have a list of *poor* ones among the new varieties:

Eclipse, Gillespie, Michel's Early, Meek's Early, Regina.

It is a little sad to find Michel's Early in this last six, especially since we have decided to give it a place in our own catalog. Well, I shall consider Michel's Early a valuable variety until we have something equally good, equally early, perfect-flowering, and as fine a berry. If it were more productive, I confess I should think a great deal more of it. Our station friends mention a new variety which they call "Unnamed No. 1," perfect in bloom, ripens about the same time as Michel's Early, and is much more prolific. The only trouble with it is, the berries are rather small.

Now, then, comes the summing-up of the best varieties among those that have been thoroughly tested—the cream of all the strawberries well known.

Bubach, Crescent, Enhance, Greenville, Haverland, Lovett, Muskingum, Parker Earle, Warfield.

Is it not a little refreshing to find that, out of nine given in the above list, four of them are already in our own catalog? The other five have all been *tested* on our grounds.

This strawberry bulletin is furnished free of charge to every resident of the State of Ohio. I suppose friends in other States can get it if they apply before the edition is exhausted. I believe I can heartily indorse almost every point made by it unless it is the matter of fall planting. With our grounds so heavily manured, and with water convenient, we make as much of a success of fall planting as we do in the spring; and, in fact, we get *better* results when we make it a point to put in strawberries wherever a piece of ground is vacated, and we do this all through the season, from July till November.

OUR NEW ELEVATOR, AND SOMETHING ABOUT ELEVATORS OF OTHER KINDS.

And they come . . . and see him that was possessed of the devil, . . . sitting, and clothed, and in his right mind. MARK 5:15.

YES, dear friends, the machine is giving us just as much satisfaction and pleasure as it did when I wrote it up last April. The matter of elevators, however, was brought to mind by reading something in regard to General Booth and his work. He too has been making a hobby of elevators, and his elevators are likewise made to elevate human beings. Perhaps the word "humanity" might express it better. In that great industrial work of his in London there is a special department of the work that is called the Elevator Department. Men are taken from the slums of London, from their drink and filth, and elevated through Christ Jesus until they become men of sense and wisdom. Well, this little band, or army of men, who have been thus elevated have begun already to take pride in being called "Elevators." Not long since, the Salvation Army gathered up some new recruits, and I judge they were pretty hard-looking customers. When they were brought to the Industrial Home, and preparations were being made to put them in with the rest, some of the older ones began to object. As nearly as I can remember, they worded it something in this way:

"Why, do they expect to take these 'dossers' and put them right among us elevator folks?"

The contrast was too great, you see; and yet these very people who rejoiced in the name of Elevators were not a whit better a few months before that than the little band of "dossers" with their dirty bodies, poor clothing, and benighted intellects. May God be praised that there *are* elevators to lift undying souls, as well as to raise these poor mortal bodies of ours; and may the whole world be moved with a heavenly impulse to spring forward and take these friends of the Salvation Army by the hand; and not only that, may the impulse be world-wide that has already been started in such a grand undertaking as *elevating* both men and women who have got "away down." Elevators indeed! Who but General Booth would ever have grasped such a thought? and not only that, but proceeded at once to make it one of the real working and prospering institutions of the age? Shall General Booth be the only one in this world of ours who is in the elevator business? God forbid!
A. I. R.

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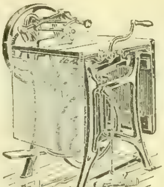

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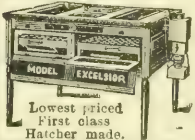

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Flint, Mich.

The Indiana State Bee-keepers' Association will hold its 15th annual meeting at the Statehouse, Indianapolis, Jan 9th, 1895. There will be three sessions. Several other associations will convene here at the same time, thus securing 1⅓ fare for the round trip; but a certificate must be asked for when buying your ticket. Programs will be ready in December.
WALTER S. POUDER, Pres., Indianapolis.

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